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VACATION NUMBERS—II

CALIFORNIA STATE BOARD OF HEALTH

MONTHLY BULLETIN

Vol. 7

JULY, 1911

No. 1

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REGULAR MEETINGS

The meetings of the California State Board of Health are held regularly the first Saturday of each month, but the quarterly meetings required by law to be held at the Capitol of the State are ordinarily designated as January, April, July, and October.

By courtesy of the University of California the Food and Drug Laboratory and Hygienic Laboratory are located in University buildings at Berkeley, California.

all general communications to the
..... SECRETARY, Sacramento, California.

JULY BULLETIN.

COMMENTS.

The Summer Campaign for Health Conservation.

The columns of the newspapers give interesting evidence of an active summer campaign for health conservation. "Swat the Fly" has become a slogan heralded from one end of the State to the other. "Clean-up days" are receiving almost as much attention. Killing mosquitoes by King Herod's method, as Woods Hutchinson styles methods of destroying the larvæ, is gaining in practice. Keeping the lid on the garbage can is appreciated to be important. Increased surveillance of markets, fruit stands, etc., is widely demanded. These are but straws pointing the current of progress in the movement.

Not only is a vigorous campaign of popular education going on, but health officials and other public officers are being stimulated to new efforts. The persistent and well planned efforts of Oroville to eradicate malaria-bearing mosquitoes is a conspicuous example of this. Oroville will soon be as free from malaria as any city in the non-malarial sections of the State. The sanitary district of Upper Lake began last year the cleaning of all streets, alleys, and vacant lots, and the weekly removal of all stable and house wastes, together with the enforcement of a regulation abolishing the open-pit toilet system in favor of the box system, with the use of wood ashes or dry earth as an absorbent and deodorizer. This was significant because it was one of the first attempts in our summer-resort districts to comprehensively deal with the small-town and country problem. This summer a number of mountain sections of the State are actively pursuing similar campaigns. Two years ago Berkeley began the pioneer anti-fly campaign in California; to-day the secretary of the chamber of commerce says: "The expenditure of a few hundred dollars in its anti-fly campaign has proved one of the best investments ever made by the municipality." The important feature of this campaign was that the municipal authorities began by rigidly applying their ordinances to their own public property and the manure bins of the fire-houses.

Pasadena began last year to establish comfort stations, following a plan for providing such facilities for every portion of the city; this summer Long Beach is taking similar action. This is one of the important public needs in all of our cities. Crusades against unsanitary methods of handling bread (the "stovewood style of toting bread"); the banishment of the common drinking cup; the prevention of serving "come backs" in restaurants (service of left-over food from the previous day); special protection of water supplies; the sanitary handling of ice; these and innumerable other special problems are being vigorously attacked by local communities throughout the State.

It is unfortunate that our reports of morbidity have been and are still too incomplete to permit any trustworthy showing of the influence of *these measures on the health of the State*. But this influence is at *no* *nevertheless* it is only that we are slow in devising accurate ways

measuring it. Just as the man who begins to sleep out of doors says as he pounds himself on his chest, "I feel a hundred per cent better," without being able to describe just how he is better, so the public is coming to realize that it pays to clean up and enforce sanitation regulations, even though we have not yet established a standard of measurement for the benefits resulting therefrom.

* * * *

California and the Cholera Situation. It would undoubtedly be a good investment for California to apply the "fire-drill" system to her public health control. Discipline made dependable through frequent drills based on hypothetical fires has saved many a life in times of the real emergency. Similarly, the sham battles of the militia and the regular army are considered well worth the cost. It is even more important that this principle should be applied to the war-game with disease, since all the fighting forces are untrained militia with only here and there a trained officer. The expense of printing and distributing brief well-worded pamphlets for boards of health, the salaries of instruction nurses, and the many other expenditures incident to developing community coöperation in fighting disease are sound investments and should be extended and systematized.

Cholera has become such a rare disease that the present generation of Californians know nothing of it. The possibility of the disease appearing here seems remote, but this is not the case. Since cholera appeared in Russia and Italy in 1910 there have come to our state from the infected areas 2,200 immigrants. It is theoretically possible that any one of these might have been a cholera "carrier" or a patient who escaped the vigilance of the health inspectors both in Europe and at the port of entry in America. To safeguard our state as far as possible, each of these immigrants has been under surveillance from the time he planned to leave his native country. The following letter is sent out from this office as soon as he leaves the quarantine port in the United States en route for California:

Health Officer,

-----, California.

DEAR DOCTOR: I have to-day received word from the immigration authorities that an immigrant named -----, from -----, is en route to California, having given the following as his destination: -----

----- This locality is within your jurisdiction. The State Board of Health, in coöperation with the United States Public Health and Marine Hospital Service, is doing everything possible to safeguard the State from the importation of cholera. This immigrant was held at the port of departure in the above named country for five days, and has been under observation on ship-board, again being inspected at the immigration port in this country. Notwithstanding these precautions, there is a possibility that some cholera-carrier may reach his final destination in this state. Consequently, it is desired that you inform yourself of the arrival of this immigrant, and that you arrange to be promptly notified if he develops any illness. It is also desirable that you request physicians in your jurisdiction to notify you promptly of any illness suggestive of cholera which may occur among residents in the vicinity of this immigrant's residence or place of employment.

Should a possible case of cholera develop within your jurisdiction, you are requested to promptly notify the State Board of Health, in order that we may send to your aid an expert from our laboratory to thoroughly investigate the matter.

Very truly yours,

(Signed) WILLIAM F. SNOW, M.D.
Secretary California State Board of Health.

But suppose all these precautions fail and one of these immigrants emitting cholera "germs" with his bowel discharges, reaches an

inland town in California, and gets a job on some construction work with camps on the banks of a city's water supply. The construction company's toilets are built over the stream, and these cholera "germs" find in this arrangement their opportunity to transfer themselves from this man who has won his personal battle with them to many susceptible victims in the city. This is one of the very possible ways in which the old world epidemic of cholera may at any moment become the source of one or more foci of the disease on this western coast of the New World.

And if this supposition should come true, then what? How many of our citizens know what to expect of their health officers and what is expected of themselves in the control of the disease and the prevention of panic? The first great world epidemic of cholera recorded occurred from 1817-1823; the second appeared in 1826 and lasted till 1837; the third appeared in 1846 and continued till 1862; the fourth began in 1864 and lasted till 1875; the fifth began in 1883 and lasted thirteen years in spite of the fact that the "germ" causing the disease was known all of this time; the sixth began in 1902 and lasted till 1906; the seventh began in 1910 and will last—how long? Probably the turning point in the battle of the nations against cholera was reached in the Hamburg outbreak in 1892, when the disease within the space of ten days attacked over 17,000 in a population of 600,000, killing 50 per cent of them, and extended its attacks to 269 other places in Germany before the defensive forces of the country could be marshaled for the battle. Within nine weeks after the intelligent direction of the fight began, the disease was practically driven out of the empire. In contrast to this victory the disease continued to rage in European Russia, causing the death of over 800,000. In 1894 cholera renewed its attack on Germany, and entered 157 towns, but the people and their officers were fully trained for the battle and only 490 persons died before it was again driven out. Since that date it has been unable to get past the closely guarded ports of entry of Germany, France, and England.

Fortunately, cholera has not succeeded in gaining a foothold in the United States since 1873, when it appeared in the Mississippi Valley, and caused serious panics and grave anxiety for the success of the Centennial Exposition which was in course of preparation at Philadelphia. In spite of the fact that during the past ten years the prevalence of cholera in Japan, China and the Philippines has seriously threatened the Pacific coast through the increasing transpacific travel, California has not had any cases of cholera since 1850. It is probable that vigorous measures at our ports of entry will protect us, but cholera is a subtle enemy and it behooves us to organize a health militia and hold ourselves in readiness.

Since June 13, 1911, the surgeon general reports twenty-five cases of cholera which have developed at sea or after arrival at the New York port of quarantine. Of this number three have escaped detection until after release for entrance to this country. Two of these were held in detention from June 20th to 27th. When released one went to Brooklyn, where she was discovered July 2d, and died July 4th; the other went to Auburn, N. Y., developing the disease June 30th and dying July 1st. The third man was a quarantine employee who left the station after having served as a guard over supposedly well passengers. He developed the disease June 13th on Staten Island, and died July 14th. The fourth case of cholera to occur within the lines of our quarantine defense has

just been reported from Boston. The city health officer reports the death (July 20th) from cholera of a woman who had taken into her home as lodgers two sailors from the crew of a vessel arriving from an Italian port. The sailors were also taken ill, but disappeared and have thus far not been located.

Under date of July 19th, the following order was issued by the United States Government:

CHOLERA-BACILLUS CARRIERS.

(1911. Department Circular No. 47, Bureau of P. H. and M. H. S.)

TREASURY DEPARTMENT.

OFFICE OF THE SECRETARY.

WASHINGTON, July 19, 1911.

To National, State, and local quarantine officers, collectors of customs, shipowners and agents, and others concerned:

In accordance with the act of Congress approved February 15, 1893, and to further prevent the entrance of cholera into the United States, the following regulation, in addition to those contained in Quarantine Regulations of the Treasury Department issued October 20, 1910, and in Department Circular No. 45, July 6, 1911, is hereby promulgated, and shall remain in force until otherwise ordered:

All steerage passengers arriving at ports in the United States from ports or places infected with cholera shall be subjected to bacteriological examination and shall not be admitted to entry until it has been determined by said examination that they are not cholera-bacillus carriers.

FRANKLIN MACVEAGH, Secretary.

This order covers the greatest factor in the control of cholera. If a focus should be developed in California it will be essential to examine the bowel-discharges of every individual in the community, who can not be absolutely excluded as a carrier by other information. Equipped with the information thus obtained the health officer can proceed with definite administrative measures directed intelligently against the enemy. If the public understands the necessity for such a measure and is prepared to coöperate with the health officer when the real emergency arises there will be no alarm and only small loss of life before the threatened epidemic is fully under control.

* * * *

The Schools and the New Vaccination Law. California has a new vaccination law. It is a lonely waif. Nobody really likes it—the doctors say it is a distinct step backward; the anti-vaccinationists say it is only a half-step forward; the uninformed public considers it an unmitigated nuisance; and the health officials look suspiciously on it as a weakling which will be of little use in their battle against smallpox. The teachers befriended it because it relieves the schools of the serious friction resulting from the old-law discrimination between the public and the private school. The State Board of Health and the Antivaccination League agreed to endorse it as a fair compromise between their divergent points of view. And now the question is being asked, “Just what is this law?”

When Johnny Jones enters school this fall his teacher will say: “Johnny, have you your certificate of vaccination with you?” And Johnny hands over his certificate showing that he has been successfully vaccinated within the past seven years of his young life; and thereupon his troubles with the vaccination law cease. Or, Johnny fails to hand over this certificate, whereupon his troubles begin. For Johnny must *then be vaccinated or present a bona fide statement from his doctor that is temporarily not in condition to be vaccinated, or convince his*

parents that they must go on written record as being conscientiously opposed to vaccination. If he succeeds in securing one of these "testimonials" he will be permitted to remain in school as long as smallpox stays out of the school district. His "temporarily-not-in-condition" certificate is void as soon as he recovers from the condition specified by his doctor, and his "conscientious objection" certificate must be renewed each year. Both are void during the presence of smallpox in the district.

The administrative detail of the new law is simple. The teacher collects a certificate from every child and turns these over to the local health officer with a certified list of her enrollment. The health officer goes over these certificates and classifies them according to the three types provided. He makes such investigations as he deems necessary and returns to the teacher for return to their owners the certificates of successful vaccination. Those certificates which he keeps constitute the list of provisional attendants. Upon the appearance of smallpox in the district he will require their withdrawal from school, and, of course, compliance under the general public health act with any other regulations he may consider that the seriousness of the situation warrants.

In the September issue of the Bulletin the full text of this law and a review of the arguments for it will be printed. Time alone can show the wisdom or fallacy of its provisions. In the mean while it is the intention of the State Board of Health and the Antivaccination League to enforce it in all good faith. These two organizations have little use for each other's opinions, but they respect the integrity of their members in attempting to eliminate the deception which has attended the enforcement of the old vaccination law. An accurate knowledge of those who are not immune is the most valuable information the health officer can have at the outset of an epidemic of smallpox. The right to send their children to the public school when smallpox is not in the community is the essential demand of the opponents of vaccination. Both these needs are met by the new law.

* * * *

A Day With the Secretary's Correspondence.

Many people wonder what the secretary of a State Board of Health can find to occupy his time. The extracts printed below from a few of the letters now awaiting reply as these comments are written may suggest a point of view.

These are but types of the daily correspondence of the Secretary's office. On an average forty to fifty important letters each day are received, and must be answered with accuracy and care, if the local health officials or citizens are to be genuinely aided. Before assistance is possible many of these requests must be investigated by correspondence with local officers or by personal trips of the Secretary.

It is the policy of the State Board of Health to do nothing for a local community which it can and should do for itself, but the number of intercounty matters, and of intracounty matters which the local officials are not equipped to cope with are beyond the resources of the Board's staff. The recent legislature increased the administrative office force of the Secretary, but as yet the Board is without field men for obtaining *direct information on the many problems presented to it for solution or advice.*

A DAY WITH THE SECRETARY'S CORRESPONDENCE, CONTINUED.

EDITOR'S NOTE.—The following letters have been selected as illustrating one phase of the State Board of Health's work. Many of these letters will require much time in searching records or in laboratory investigation before final answers can be given. Next month extracts from the monthly reports of the "Movements of the Secretary" will be printed in illustration of another phase of the routine work of the Board:

July 20, 1911.

[Southern California City.]

Dr. W. F. Snow, Secretary State Board of Health, Sacramento, California.

DEAR DOCTOR: Inclosed you will find letter from _____, directed to the Mayor, relative to the insanitary conditions of certain canneries. The matter is respectfully referred to you for investigation and reply.

Yours very truly,

_____,
Acting Health Commissioner.

[Respectfully referred to California State Board of Health.]

* * *

[A Bay City.]

_____, Cal., July 24, 1911.

Doctor Long, U. S. Marine Hospital Service, San Francisco, Cal.

DEAR SIR: Under instructions from the North Side Improvement Club of _____, I beg to bring to your attention the fact that persons on board ships, as well as persons on the shore, are recklessly throwing refuse, such as old clothing, furniture, dead animals, etc., into the estuary of Oakland harbor. This refuse does not float out to sea, but is driven to the Alameda shore by the current, and there becoming decayed causes a nuisance, both unsightly and dangerous to health.

The _____ Association, on account of the large area of their shipping plant, are the greatest sufferers. We know that you will take the necessary steps, as far as your jurisdiction will permit, to abate the nuisance.

I am advising the city authorities as well, but I permit myself to suggest that a word from you to them as regards people on shore would help along materially.

Thanking you in advance, I remain,

Respectfully yours,

_____, Secretary.

DAY LETTER.

THE WESTERN UNION TELEGRAPH COMPANY.

LOS ANGELES, CAL., July 24, 1911.

Dr. W. F. Snow, Sec'y State Board of Health, Sacramento, Cal.

Has State Board power to disinter and examine body; died here July 14; diagnosis yellow fever. Returned from Mexico six days prior death. Will Board pay undertaker's expenses, such procedure? Think it important to clear up such diagnosis. If Snow away, telephone message to Gardner for opinion. Answer promptly.

WM. LEMOYNE WILLS.

3:30 P. M.

* * *

DEAR DOCTOR: Replying to your letter relative to the epidemiology of the plague case which occurred near Lafayette, Contra Costa County, I beg leave to quote from Dr. McCoy's final report as follows:

"The patient was a boy, nativity Contra Costa County, age 7 years, name Horace Flood. He gave a clear history of having hunted squirrels on a number of days during the past month. These squirrels were chased into cracks in the earth, dragged out with a hooked wire and killed by a dog. The dead squirrels were then carried home to be fed to a captive bobcat. A few days before the boy became sick, he was bitten on the left hand by a wood rat.

On Friday, July 21st, the boy became ill with fever and chilliness. The temperature when seen by a physician on that day was 105 F. The following day a swelling was found in the right axilla, and the shoulder and surrounding areas were painful and tender. Nose bleed occurred several times.

The case when I saw it was clinically undoubtedly one of plague. Fluid drawn from the gland with a hypodermic syringe showed pest-like bacilli in smears and a pure culture of *B. pestis* was secured on media. Two guinea pigs inoculated with the aspirated fluid died on the sixth day with the usual lesions of plague. The bacteriological examination therefore confirmed the clinical diagnosis.

Dr. Leech, under whose professional care the boy was, advises me that the boy died on the 26th instant.

Anti-pest serum was used without benefit."

My preliminary report of clinical diagnosis was made pending the bacteriological examination, and was sent in as soon as I had received it from Dr. McCoy, who saw the case in consultation with Dr. Leech, the family physician.

Yours sincerely,

RUPERT BLUE,
Surgeon, in Command.

* * *

[A Northern California City.]

I want to report a case and ask your advice concerning same.

We have a county charge in the person of an ex-sea captain, who is about 68 years of age, and gives a varied and suspicious history, having lived from time to time in many different ports of the world. The case looks very much like one of leprosy, though no diagnosis has been made as yet.

I saw the case to-day with the county physician, and he wants advice from the State Board. We are not sure what the trouble really is, but the man has been isolated for safety for the present, and is under the care of Dr. _____, county physician. Will you kindly write him concerning case, as I am just starting East, and will not be here when your letter arrives.

Please excuse haste, have written hurriedly.

Yours fraternally,

* * *

[A San Joaquin Valley City.]

_____, Cal., July 25, 1911.

Wm. F. Snow, M.D., Sacramento, Cal.

DEAR SIR: We wish to call your attention to the septic tanks, which unfortunately happen to be within a few hundred yards of our home, and which is causing us a great deal of annoyance.

The odor at times is unbearable, and we are compelled to close our windows, which is very unpleasant these warm nights.

Not only that, but since the tanks have been there we have been troubled with mosquitoes so bad that it is impossible to stay out of doors after sundown.

Hoping you will investigate the matter and see if anything can be done in regard to it, we remain,

Yours truly,

* * *

[A Central California City.]

I was called to _____, a little town about ten or eleven miles from here, to inspect the city and surrounding country in regard to the sanitary conditions.

I find _____, although an incorporated town, has no organized Board of Health or Health Officer. It is absolutely the most unsanitary, foul smelling, dirty place I ever saw in the United States. There is from sixteen to twenty cesspools or so-called sanitary vaults, or septic tanks, they are all flowing over. As the state law forbids pumping them, I have served notices on quite a number of them not to pump them out, and left notices for the Mayor of the town to serve on those that I did not see.

I write you for advice and instructions how to handle this little burg. They voted down the sewer bonds, but I can see no remedy to clean the place up without sewerage. Some houses have their whole back yard dug up with cesspools from ten to fourteen feet deep, and all overflowing.

I would like for you to advise me what to do in this matter. If you think it is best to send a man or come yourself to investigate this case, come to _____ or have the party whoever does come, if you send anybody, stop at _____ and we will motor down. The trouble all seems to hinge on two factions in the town, but I'm quite positive that the State Board will have to take hold of this matter. If not, the town is so dirty and filthy that we'll have some serious epidemics before long, on account of the unsanitary condition of the place.

Will you kindly reply to this as early as you can, I am,

Yours respectfully,

_____, County Health Officer.

* * *

[Northern California.]

At _____ is located the old sawmill, built many years before I entered the service of the Fish and Game Commission. The sawdust was run out by a V flume, and dumped along the banks, and back on a flat marsh, bordering _____ Creek. A board wall or fence was built along the bank of the stream to hold the sawdust back from the stream. The sawdust was piled up to a depth of thirty feet or more, for a distance of a thousand or fifteen hundred feet along the stream, and back for six hundred feet, the water passing through beneath and out in small streams into the creek.

Added to the sawdust there was placed over the V flume toilets for the use of the men at the box factory. A fire destroyed the fence, allowing the sawdust to fall down into the stream. The surface of this immense heap of sawdust becomes dry as soon as the snow is melted or soon after a rain. Every spring the wind blows a gale from the south, which drives the dry particles of sawdust into the old channel of the stream, thus keeping a supply which passes down, soaking with the water, and slowly filling up the pools, to a distance uncalculable, entering Shasta River and the Klamath, and so on.

The water that carries the sawdust from the mill keeps it soaked from a few inches below the surface to the ground beneath, precluding the burning of the sawdust except on the surface. The water takes with it the turpentine and sap from the sawdust, which added to the other sources, makes a black, foaming stream that has a fearful stench unfit for cattle or humans to drink.

In order to stop as much as possible the sawdust from passing down the stream the company was required by the Fish Commission to dig a ditch, diverting the stream from its old channel out along the hillside for a distance of six hundred feet, thereby putting the water into the old channel below the dump, but often the cattle break the banks and the water gets back into the stream, but none is getting away now from that source, as the ditch has been repaired and cattle turned out.

This creek flows down through _____, a part of the town of _____, where it gathers the sewer deposit of most of the town, the greater portion of which is saloons. Then come the great sawdust dumps from the immense plant at _____, covering a hundred acres, or nearly so, many feet deep. Here the toilets are over the flumes and the mass is dumped out on the land above the creek, the water finding

its way into same along the ground beneath. When I last reported this dump, a hole through the brush and under the wall was allowing the water to wash sawdust down, but my inspection of yesterday found the place closed and no sawdust escaping, but the water (about thirty miners' inches being used) is black slime, full of turpentine, sap, etc.

As stated in former reports, the water from these sources flowing down the creek into Shasta River is polluted and is polluting Shasta River, noticeable for a distance of fifteen miles.

The only way to obviate this is for those mills to burn the sawdust and the sewerage to be dumped into tanks and sterilized. The sawdust is less in extent than in the past, but the slime is worse. I am taking this report to our district attorney, and will get his answer.

Yours respectfully,

* * *

[A Lower San Joaquin City.]

DEAR SIR: Under separate cover, I am sending you a set of plans for the proposed settling tanks for the city of _____, Cal.

You will notice that they are designed along circular lines, thereby using maximum economy in construction and maximum efficiency in diffusing the sewage in the tanks. You will also notice that provision has been made for cleaning out, not only the sludge, but also the scum. It is proposed to use the effluent for irrigation when desired, and when not so used, to run the sewage effluent through open jointed tile drains, laid under the surface of the ground, until it has seeped away.

The tanks will be located about three miles southwest of the city, on a 40-acre sewer farm.

The plans for the entire works have not been completed as yet, but I thought I would send these in with the request that you look them over when convenient; I would like to have the plans in such shape that they will meet with your approval, and that you will then approve them officially, if such procedure is permissible.

Very truly yours,

* * *

[A Sacramento Valley City.]

Will you kindly inform me as to the requirements with regard to slaughterhouses?

The local County Health Officer of this place orders me to not salt hides in the slaughterhouse; to not feed offals to hogs at all unless cooked, as they are inductive to typhoid. I am willing to do all that is required, and will conform to any reasonable request beyond actual requirements. And as I have never seen any out-of-town slaughterhouses doing these things, I am inclined to think that I am being imposed upon. To cook the offals from my killing—which amounts to only an average of one beef per day, would require me to hire an extra man at an expense of about \$60 per month, and would knock the profit entirely off the business. I have a large hog yard, about one and one half acres, and have my men scatter these offals so that the hogs can and do clean them up entirely before they decompose.

As to salting hides at the slaughterhouse—they are thoroughly salted and cured, but, as you surely know, hides always smell, and smell strongly. The fresh meat comes in contact with nothing but the wagon it is hauled in, and is not left there at all, but taken immediately to the market. Please instruct me fully, and also, has the local officer any authority beyond your rules?

Yours very truly,

* * *

[A San Francisco Case.]

Acknowledging the citation issued by your honorable Board, directed against us April 15, 1911, we are enclosing affidavit of our manager in regard to same.

On the occasion of the inspector's first visit to us we assured him of our willingness to strictly observe the laws of the Pure Food Commission, and advised him if he saw anything on our shelves that did not comply with said laws, we would gladly remove the same.

We must acknowledge the violation in this case, and ask that you deal with us as leniently as the circumstances will permit. Assuring you of our hearty cooperation in the upholding of all pure food laws, we beg to remain,

Yours very truly,

* * *

[A Los Angeles Case.]

I do hereby depose and make affidavit that the labels found on toothache drops of my manufacture were put on by error by a new clerk in my employ, and none of same were sold, having been bottled a couple of days previous to your inspector's call.

Proper labels were in stock and in use at the time, and had been for several years back, however, some of the "old firm" labels remained undestroyed and my clerk happened on these.

I was not present when your inspector was doing his duty, but on my return (about an hour later), and on learning of the mislabeled drops, immediately wrote the honorable State Board of Health at Sacramento of the error and enclosed the properly worded labels which should have been used. The half dozen bottles of toothache drops were relabeled and all old labels destroyed.

Very truly,

[From a San Joaquin Valley City.]

Secretary of State Board of Health

DEAR SIR find in closed Bill of goods that wer bought in sept 15 1905 of _____
Syrup Pickle CO. which the chiley sause that the puer food in spector found that did
not conform with puer food law now this goods were mald before the puer food law
past and we posable had a few botles that had neve bin sold and posible hav not sold
eny for years and i hav in structed my manager to distroy all that old goods he has
in store as we dont want to vilate the lawe in eny form and i hop yoy will ex plain
this to yor bord and ask them to dismmiss the case as we wer ignernt of the contence
of the goods and and cant sea how the other people could be blamd as it wer put up
be fore the food law wer past. thanking you for yor trouble and what ever expence
you may be to iwill gladly pauy yours vary truly

[The above is an accurate copy, minus the address and signature.]

* * *

[Sacramento Valley Town.]

Secretary of State Board of Health.

The water works of this town are municipally owned, and the Board of Trustees
is desirous of having the water furnished by these works analyzed in order to deter-
mine its fitness for general use.

It has been suggested to me that the State Board of Health would furnish an
analysis or would investigate and advise how and where one can be obtained.

Can you aid me in this matter?

Respectfully,

* * *

[From a Bay City.]

You would greatly oblige me if you could let me have, for an indefinite period of
a few months, one of the demonstration boxes I have seen, to be used as illustration
of talks on hygiene. We expect to have two or three different courses on this and
allied subjects at our Y. W. C. A., and perhaps there will be opportunity also for me
to use it in some schools, through mothers' clubs, etc.

I would also be very glad, if possible, to be on your mailing list for the bulletins
of the Board of Health.

Thanking you for your help in this matter,

Very sincerely yours,

* * *

[A Southern California City.]

At the present time, in a few cases, the undertakers are compelled to go to the CITY
HEALTH OFFICE, also, to visit my office, which is three blocks farther north, while
nearly all the undertakers' establishments are a mile or more farther south. Nearly
all of the undertakers have signed a petition requesting me to appoint a member of
one of the largest undertaking firms as a subregistrar. This, no doubt, would be a
convenience to them; on the other hand, one firm objects very strenuously to such
action on my part.

I have taken the matter up with the City Health Officer, and he says that the
undertakers do a great many things that they ought not to do, and he regrets he can
not have some of them arrested. I consider the gentleman they have requested me to
appoint a reliable man; but in the end it is necessary for you to approve all my
work and my appointments.

Do you think it advisable to appoint an undertaker to issue burial permits? An
early reply will be appreciated.

Yours very truly,

County Recorder.

* * *

DEAR SIR: Please accept my thanks for your very kind letter of the 3d inst. in
response to my letter inquiring what, if anything, had been done as to the matter of
calling attention of medical practitioners to act approved April 21, 1911, for the
reporting of occupational diseases.

I think every one is satisfied that the changes made in the bill for the purpose of
having medical practitioners report to the State Board of Health and the latter
transmit such data to the Commissioner of the Bureau of Labor Statistics will prove
beneficial.

Yours, etc.,

* * *

MY DEAR DR. SNOW: If you have not taken up that matter of the International
Congress on Hygiene and Demography with Governor Johnson, please do so. There
is an active foreign demand for our preliminary announcement, and we must get it
out, in French and German, as well as in English, without delay. I should hate very
much to let it go with the statement that only twenty out of forty-six states have so
far sent in official acceptances of the President's invitation. It would be a bad parallel
to the other statement that twenty-three foreign countries (all there are that count)
have sent their official acceptances to the Department of State.

Yours very truly,

JOHN S. FULTON, Secretary-General.

I am now engaged in compiling the California Blue Book, issue of 1911, as provided by the last session of the legislature, and in this connection would thank you kindly if you will, in your official capacity, favor me with an article of about two thousand words as an introductory bearing on your branch of the State government. I would appreciate it very much if you would let me have this article at an early date.

Thanking you in anticipation of your kind consideration, I am

Very truly yours,

FRANK C. JORDAN, Secretary of State.

• • •

[San Francisco Consulate.]

This is to request of you the favor to inform me at your convenience, whether the following names appear in your death-list:

John Marcopulos or Marcos, a Greek, supposed to have died eight months ago.

Michael Carantsas or Colontaris or Vamos, a Greek, about seventy years old, supposed to have died six months ago.

Thanking you in advance for any information that you may desire to furnish me with, regarding the death of these men, I am,

Respectfully yours,

RICHARD DE FONTANA, Consul of Greece.

DEPARTMENT REPORTS.

REPORT OF BUREAU OF VITAL STATISTICS FOR JUNE.

GEORGE D. LESLIE, Statistician.

State Totals and Annual Rates.—The following table shows for California as a whole the birth, death, and marriage totals for the current and preceding months in comparison with those for the corresponding months of last year, as well as the annual rates per 1,000 population represented by the totals for the current and preceding months. The rates are based on an estimated midyear population of 2,488,256 for California in 1911, the estimate having been made by the Census Bureau method with slight modifications.

Birth, Death and Marriage Totals, with Annual Rates per 1,000 Population for Current and Preceding Months, for California: June.

MONTH.	MONTHLY TOTAL.		Annual Rate per 1,000 Population 1911.
	1911.	1910.	
June—			
Births	2,986	2,746	14.6
Deaths	2,604	2,630	12.7
Marriages	2,976	2,636	14.5
May—			
Births	2,814	2,613	13.7
Deaths	2,888	2,727	13.7
Marriages	2,087	1,858	9.9

The death total for June, 1911, is somewhat less than that for June, 1910, but the birth and marriage totals for June, as for the preceding five months of 1911, are greater than the corresponding totals for the same months last year.

In fact, the June marriage total for 1911 is by far the highest monthly total reported under the registration law of 1905, the several June totals being as follows: 1911, 2,976; 1910, 2,636; 1909, 2,511; 1908, 2,251; 1907, 2,366, and 1906, 2,342.

County Totals.—The following table shows the monthly birth, death, and marriage totals for the principal counties of the State, the list being limited to counties having a population of at least 25,000 according to the Federal Census of 1910. Totals are also shown for San Francisco

and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), as well as for Los Angeles and Orange counties together:

Birth, Death and Marriage Totals, for Principal Counties: June.

County.	JUNE, 1911.		
	Births.	Deaths.	Marriages.
California	2,986	2,604	2,976
Counties of more than 25,000 population (1910):			
Alameda	334	255	311
Butte	30	18	20
Contra Costa	42	26	17
Fresno	112	73	91
Humboldt	34	27	28
Kern	35	39	32
Los Angeles	731	570	717
Marin	22	18	90
Orange	47	34	117
Riverside	67	38	35
Sacramento	115	97	106
San Bernardino	63	87	57
San Diego	61	91	107
San Francisco	592	502	523
San Joaquin	42	70	73
San Mateo	42	31	38
Santa Barbara	37	19	29
Santa Clara	115	109	117
Santa Cruz	30	23	23
Solano	24	29	19
Sonoma	41	39	52
Tulare	37	31	33
Selected groups:			
San Francisco and other bay counties	1,032	832	979
Los Angeles and Orange counties	778	604	834

City Totals.—The table below gives the birth and death totals for the principal freeholders' charter cities, the list including all chartered cities with a census population of at least 15,000 in 1910. Totals are given likewise for San Francisco and the transbay cities (Alameda, Berkeley, and Oakland), as well as for Los Angeles and neighboring chartered cities (Long Beach, Pasadena, Pomona, and Santa Monica):

Birth and Death Totals, for Principal Cities: June.

City.	JUNE, 1911.	
	Births.	Deaths.
Freeholders' charter cities	1,908	1,565
Cities of more than 15,000 population (1910):		
Alameda	22	19
Berkeley	93	31
Fresno	53	32
Long Beach	21	22
Los Angeles	515	373
Oakland	191	157
Pasadena	40	24
Riverside	48	25
Sacramento	80	61
San Diego	40	74
San Francisco	592	502
San Jose	53	37
Stockton	16	39
Selected groups:		
San Francisco and transbay cities	898	709
Los Angeles and neighboring cities	592	438

Causes of Death.—The following table shows the classification of deaths in California for the current month, in comparison with the preceding month:

Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths for Current and Preceding Month, for California: June.

Cause of Death.	Deaths:	Proportion per 1,000.	
	June.	June.	May.
All causes	2,604	1,000.0	1,000.0
Typhoid fever	38	14.6	12.8
Malarial fever	5	1.9	2.8
Measles	7	2.7	4.5
Scarlet fever	11	4.2	3.5
Whooping-cough	20	7.7	6.2
Diphtheria and croup	7	2.7	3.1
Influenza	6	2.3	1.7
Other epidemic diseases	17	6.5	6.2
Tuberculosis of lungs	320	122.9	147.8
Tuberculosis of other organs	75	28.8	30.5
Cancer	158	60.7	67.2
Other general diseases	111	42.6	45.0
Meningitis	41	15.8	11.8
Other diseases of nervous system	214	82.2	89.7
Diseases of circulatory system	376	144.4	161.0
Pneumonia and broncho-pneumonia	149	57.2	64.8
Other diseases of respiratory system	60	23.0	22.5
Diarrhea and enteritis, under 2 years	88	33.8	18.0
Diarrhea and enteritis, 2 years and over	42	16.1	6.6
Other diseases of digestive system	147	56.5	47.1
Bright's disease and nephritis	156	59.9	68.9
Childbirth	35	13.4	11.4
Diseases of early infancy	91	34.9	32.2
Suicide	72	27.7	17.7
Other violence	232	89.1	77.2
All other causes	128	48.4	39.8

In June there were 395 deaths, or 15.2 per cent of all, from various forms of tuberculosis, and 376, or 14.4 per cent, from diseases of the circulatory system, tuberculosis thus leading heart disease somewhat.

Other notable causes of death were: Violence, 304; diseases of the digestive system, 277; diseases of the nervous system, 255; diseases of the respiratory system, 209; cancer, 158; Bright's disease and nephritis, 156, and epidemic diseases, 111.

The deaths from epidemic diseases were as follows: Typhoid fever, 38; whooping-cough, 20; scarlet fever, 11; measles and diphtheria (and croup) each, 7, and all other epidemic diseases, 30.

The deaths from the three leading epidemic diseases reported for May were distributed by counties as follows:

TYPHOID FEVER.		WHOOPING-COUGH.		SCARLET FEVER.	
Alameda	2	Alameda	1	Contra Costa	6
Contra Costa	2	Butte	2	Kern	1
Fresno	4	Colusa	1	Los Angeles	2
Humboldt	1	Kern	1	San Francisco	1
Imperial	2	Los Angeles	2	Sonoma	1
Kern	2	Marin	1	Total	11
Los Angeles	5	Merced	1		
Mendocino	1	Orange	2		
Monterey	1	Riverside	1		
Napa	1	San Francisco	4		
Orange	1	San Joaquin	1		
Sacramento	2	Solano	1		
San Bernardino	4	Tulare	1		
San Francisco	6	Yolo	1		
Santa Cruz	1	Total	20		
Stanislaus	2				
Tehama	1				
Total	38				

Geographic Divisions.—Data for geographic divisions, including the metropolitan area, or "Greater San Francisco," are as follows:

Deaths from Main Classes of Diseases, for Geographic Divisions: June.

Geographic Division.	DEATHS: JUNE.										
	All Causes	Epidemic Diseases	Tuberculosis (All forms)	Cancer	Diseases of Nervous System	Diseases of Circulatory System	Diseases of Respiratory System	Diseases of Digestive System	Bright's Disease and Nephritis	Violence	All Other Causes
THE STATE	2,604	111	395	158	255	376	209	277	156	304	101
Northern California	274	16	35	23	33	38	17	■	11	■	37
Coast counties	146	7	18	12	20	24	9	15	11	13	17
Interior counties	128	9	17	11	13	14	8	9	■	21	20
Central California	1,461	69	191	95	121	219	139	161	85	178	208
San Francisco	502	18	60	39	28	98	65	52	22	■	■
Other bay counties	330	19	39	20	35	43	30	33	■	■	46
Coast counties	173	4	32	■	■	28	15	16	11	16	21
Interior counties	468	28	60	22	42	52	29	60	31	71	61
Southern California	869	26	169	40	101	119	53	92	54	97	118
Los Angeles	570	12	105	32	61	82	40	87	42	66	83
Other counties	299	14	64	8	■	37	13	35	12	41	35
Northern and Central California Metropolitan area	1,725	85	228	118	164	257	156	185	102	207	245
Rural counties	832	37	99	59	63	139	96	85	■	86	126
	903	48	127	59	91	118	61	100	59	121	119

Communicable Diseases—Report for June, 1911.

Disease.	Cases.	Places.
Typhoid fever	73	11
Measles	322	12
Scarlet fever	160	16
Whooping cough	78	7
Diphtheria	48	10
Smallpox	3	2
Malaria	19	3
Hookworm	14	1*
Filaria	1	1*

* Found in San Francisco as result of investigations of Bureau of Tropical Diseases, Department of Health.

REPORT OF THE PURE FOOD AND DRUG LABORATORY.

PROFESSOR M. E. JAFFA, Director.

Owing to the necessity for the members of the Board to attend the Conference of State and Provincial Boards of Health in Los Angeles on July 1st, the regular meeting date, no pure food hearings were scheduled for July and the regular report of the work of this department will be included in the report for August.

REPORT OF THE STATE HYGIENIC LABORATORY FOR JUNE.

WILBUR A. SAWYER, M.D., Director.

As a part of the exhibit of the State Board of Health the Hygienic Laboratory maintained a public display in Los Angeles during the annual session of the American Medical Association from June 27th to 30th. The mailing outfits and literature of the laboratory, a wall map showing the distribution of rabies in California, and hygienic devices, such as extemporized drinking cups, pocket sputum cups, paper handkerchiefs, and paper towels, were displayed. Public health officials from other states were interested in the recently devised bacteriological instruction outfit for teachers. This outfit shows among other things, germs growing in the tracks of flies and in finger prints, bacteria from dirty milk and from dust, and also a great variety of bacteria from a public drinking cup. A description of this outfit was published in the May Bulletin of the State Board of Health.

The Director of the Laboratory visited several towns in southern California after attending public health meetings during the session of the Medical Association. At Riverside he had the privilege of speaking before a union meeting of the church brotherhoods of that city. The gathering was addressed by the city and county health officers, Dr. Thomas R. Griffith and Dr. George E. Tucker, and resulted in the organization of a league for the support of public health measures.

The tabulated report of the routine examinations of the laboratory is appended.

Summary of Examinations made in the California State Hygienic Laboratory during the month of June, 1911.**Main Laboratory at Berkeley:**

Condition suspected:	Positive.	Negative.	Total.
Diphtheria	7	29	36
Malaria	--	--	--
Rabies	3	2	5
Tuberculosis	5	16	21
Typhoid	5	10	15
Water pollution	--	--	--
Anthrax	--	1	1
Miscellaneous	--	2	2
			<hr/> 80

Los Angeles Branch Laboratory:

Condition suspected:			
Diphtheria	1	3	4
Tuberculosis	--	1	1
			<hr/> 5

Total number examinations

85

REPORT OF THE BUREAU OF PUBLIC HEALTH INFORMATION.**IMPORTANT ANNOUNCEMENT.**

The League of California Municipalities will hold its fourteenth annual convention in Santa Barbara, October 23d to 28th, inclusive, in conjunction with the annual conference of the State and Local Boards of Health.

The officers of the league are planning an important program, and have arranged for an extensive exhibit of municipal machinery, supplies, and health appliances. Every one interested in civic planning and improvement, whether a member of these conferences or not, should make an effort to attend these meetings.

The issues of Pacific Municipalities give the details for this convention, and the future numbers of this Bulletin will refer again to it. Any letters addressed to the State Board of Health or to the editors (H. A. Mason and Wm. J. Locke), of the Pacific Municipalities, Pacific Bldg., San Francisco, will be promptly answered.

Remember the date—October 23-28th.

LIST OF COUNTY HEALTH OFFICERS.

County.	Health Officer.	Address.
Alameda	Dr. C. L. McKown	Niles
Alpine*	County Recorder Frank Smith	Markleeville
Amador	Dr. E. E. Endicott	Jackson
Butte	Dr. L. Q. Thompson	Gridley
Calaveras	Dr. E. W. Weirich	Angels Camp
Colusa	Dr. C. A. Poage	Colusa
Contra Costa	Dr. F. S. Gregory	Black Diamond
Del Norte*	County Recorder N. G. McVay	Crescent City
El Dorado	Dr. W. S. Hickman	Georgetown
Fresno	Dr. W. T. Burke	Fresno
Glenn	Dr. J. A. Randolph	Willows
Humboldt	Dr. E. H. Bryan	Eureka
Imperial	Dr. Virgil McCoombs	Imperial
Inyo	Dr. L. J. Woodin	Independence
Kern	Dr. G. M. Bumgarner	Bakersfield
Kings	Dr. Ralph Motherol	Hanford
Lake	Dr. W. E. Upton	Kelseyville
Lassen	Dr. D. E. Mason	Bieber
Los Angeles	Dr. F. O. Sawyer	Los Angeles
Madera	Dr. Mary R. Bultin	Madera
Marin	Dr. J. H. Kuser	San Rafael
Mariposa	Dr. F. L. Wright	Mariposa
Mendocino	Dr. J. Litchfield	Ukiah
Merced	Dr. C. H. Castle	Merced
Modoc	Dr. John Stille	Alturas
Mono*	County Recorder Geo. Delury	Bridgeport
Monterey	Dr. Garth Parker	Salinas
Napa	Dr. Adolph J. Kahn (County Physician)	Napa
Nevada	Dr. Carl P. Jones	Grass Valley
Orange	Dr. C. D. Ball	Santa Ana
Placer	Dr. G. H. Fay	Auburn
Plumas	Dr. F. D. Walsh	Quincy
Riverdale	Dr. George E. Tucker	Riverside
Sacramento	Dr. Hugh Beattie	Elk Grove
San Benito	Dr. R. G. Curtis	Hollister
San Bernardino	Dr. Phillip M. Savage	San Bernardino
San Diego	Dr. Nathan Hunt	San Diego
San Francisco	Dr. W. F. McNutt, Jr.	San Francisco
San Joaquin	Dr. Wm. Friedberger	Stockton
San Luis Obispo	Dr. H. M. Cox	San Luis Obispo
San Mateo	Dr. W. G. Beattie	Colma
Santa Barbara	Dr. J. C. Bainbridge	Santa Barbara
Santa Clara	Dr. William Simpson	San Jose
Santa Cruz	Dr. W. R. Congdon	Santa Cruz
Shasta	Dr. F. Stabel	Redding
Sierra	Dr. R. B. Davey	Downsville
Siskiyou	Dr. F. J. McNulty (County Physician)	Yreka
Solano	Dr. S. G. Bransford	Suisun
Sonoma	Dr. S. S. Hogle	Santa Rosa
Stanislaus	Dr. F. R. De Lappe	Modesto
Sutter	Dr. J. McFadyen	Yuba City
Tehama	Dr. J. S. Cameron	Red Bluff
Trinity	Dr. D. B. Fields	Weaverville
Tulare	Dr. M. E. Pettit	Visalia
Tuolumne	Dr. Wm. Lyman Hood	Sonora
Ventura	Dr. A. A. Mauhardt	Oxnard
Yolo	Dr. W. J. Blevins	Woodland
Yuba	Dr. J. H. Barr	Marysville

*This county has not been able to arrange with any physician to serve as county health officer.

PARTIAL LIST OF CITY HEALTH OFFICERS.

Alameda.....	Dr. L. W. Stidham	Merced.....	Dr. C. H. Castle
Alhambra.....	Dr. F. E. Corey	Mill Valley.....	Capt. M. Staples
Alturas.....	Dr. John Stile	Modesto.....	Dr. J. J. Knowlton
Anaheim.....	Dr. J. L. Beebe	Mojave.....	Mr. A. Smith
Anderson.....	Dr. J. H. Soothill	Monrovia.....	Dr. R. D. Adams
Antioch.....	E. C. Worrill	Monterey.....	J. E. Freeman
Auburn.....	Dr. R. F. Rooney	Morgan Hill.....	Dr. D. W. Watt
Azusa.....	Dr. S. A. Ellis	Mountain View.....	Dr. Philo Hull
Berkeley.....	Dr. J. J. Benton	Napa.....	J. D. Treadway
Biggs.....	Dr. B. Caldwell	National City.....	Dr. Theo. F. Johnson
Black Diamond.....	Dr. F. S. Gregory	Nevada City.....	Hugh Murchie
Bakersfield.....	Dr. G. M. Bumgarner	Newman.....	Dr. H. V. Armistead
Calexico.....	Dr. H. G. Richter	Oakland.....	Dr. E. N. Ewer
Chico.....	G. H. Taylor	Ontario.....	Dr. C. S. Orr
Chino.....	Dr. P. M. Savage	Orange.....	Dr. F. L. Champline
Coalinga.....	Dr. H. S. Warren	Oroville.....	Dr. W. F. Gates
Colton.....	Dr. J. A. Champion	Oxnard.....	Dr. Ralph W. Avery
Colusa.....	Dr. W. T. Rathbun	Pacific Grove.....	Dr. H. N. Yates
Corona.....	W. H. Chapman	Palo Alto.....	Hubert O. Jenkins
Coronado.....	Dr. Raffaele Lorini	Pasadena.....	Dr. Stanley P. Black
Cottonwood.....	Dr. A. B. Gilliland	Petaluma.....	Dr. J. M. Proctor
Davis.....	Dr. W. E. Bates	Placerville.....	Mr. P. J. Hall
Doris.....	Dr. A. A. Atkinson	Pleasanton.....	Dr. S. J. Wells
Dixon.....	Dr. R. L. Rierson	Pomona.....	Dr. T. J. Wilson
Dunsmuir.....	Dr. E. J. Cornish	Piedmont.....	Geo. T. Burtchael
East San Jose.....	Dr. W. A. Low	Randsburg.....	Mr. E. B. McGinnes
Elsinore.....	Dr. Hugh Walker	Redding.....	L. D. Poole
Escondido.....	Dr. David Crise	Redlands.....	Dr. J. M. Wheat
Etna.....	Dr. W. H. Haines	Redondo Beach.....	Dr. D. R. Hancock
Eureka.....	Dr. W. L. Perrott	Redwood.....	Dr. J. L. Ross
Fairfield.....	Dr. S. G. Bransford	Richmond.....	Dr. Chas. R. Blake
Ferndale.....	Dr. L. Michael	Riverside.....	Dr. Thos. R. Griffith
Fort Bragg.....	Dr. L. C. Gregory	Rocklin.....	Dr. S. P. Rugg
Fort Jones.....	Thos. Bransom	Sacramento.....	Dr. Wm. K. Lindsay
Fresno.....	Dr. Geo. H. Aiken	Salinas.....	S. A. McCollum
Gilroy.....	Dr. Jonas Clark	San Bernardino.....	Dr. J. G. Ham
Glendale.....	R. E. Chase	San Diego.....	Dr. F. H. Mead
Grass Valley.....	Dr. C. P. Jones	San Francisco.....	Dr. W. F. McNutt, Jr.
Gridley.....	Dr. L. L. Thompson	San Jose.....	Dr. H. C. Brown
Hanford.....	Dr. R. W. Musgrave	San Jacinto.....	Charles Long
Hayward.....	Dr. F. W. Browning	San Rafael.....	Dr. W. F. Jones
Healdsburg.....	Dr. O. C. Hueb	Santa Ana.....	Dr. J. I. Clark
Hermosa Beach.....	H. Vetter	Santa Barbara.....	Dr. D. A. Conrad
Hollywood.....	E. O. Palmer	Santa Cruz.....	Dr. H. E. Piper
Huntington Park.....	Dr. W. Thompson	Santa Monica.....	Dr. W. H. Parker
Kernville.....	Mr. J. W. Sumner	Santa Rosa.....	Dr. Jackson Temple, Jr.
Lakeport.....	Dr. Jabez Banks	Sawtelle.....	Dr. A. B. Hromadka
Lincoln.....	Dr. G. W. Davis	Sisson.....	Dr. L. Gouzuot
Lindsay.....	Dr. Walter W. Tourtillott	South Pasadena.....	Dr. C. A. Whiting
Livermore.....	Dr. H. G. McGill	Stockton.....	Dr. S. W. R. Langdon
Lodi.....	Dr. F. W. Colman	Taft.....	Mr. J. W. Bursell
Long Beach.....	Dr. W. H. Newman	Tracy.....	Dr. J. G. Murrell
Los Angeles.....	Dr. L. M. Powers	Turlock.....	Dr. E. L. Clough
Los Gatos.....	Dr. C. K. Small	Vacaville.....	Mr. A. P. Finan
Madera.....	Dr. Mary R. Butin	Vallejo.....	Dr. F. T. Bond
Maricopa.....	Mr. Thad Cheeney	Watsonville.....	Dr. F. H. Koepke
Martinez.....	Dr. E. E. Brown	Woodland.....	W. D. Clary
McCloud.....	Dr. R. T. Legge	Whittier.....	Dr. W. H. Stokes
McKittrick.....	Mr. G. M. Chitwood	Yreka.....	Dr. A. J. Collar

**THE CALIFORNIA STATE BOARD OF
HEALTH BULLETIN WILL BE SENT
FREE TO ANY CITIZEN OF THE STATE
ON REQUEST.**

VACATION NUMBER—III

CALIFORNIA STATE BOARD OF HEALTH

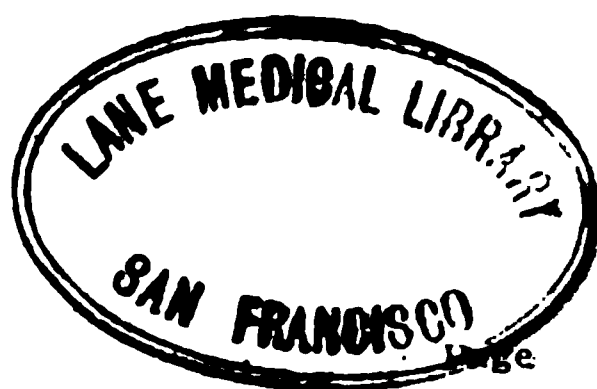
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REGULAR MEETINGS

The meetings of the California State Board of Health are held regularly the first Saturday of each month, but the quarterly meetings required by law to be held at the Capitol of the State are ordinarily designated as January, April, July, and October.

By courtesy of the University of California the Food and Drug Laboratory and the Hygienic Laboratory are located in University buildings at Berkeley, California.

Address all general communications to the
SECRETARY, Sacramento, California.

AUGUST BULLETIN.

COMMENTS.

Approved (?) Methods of Suicide.

If the old saying that "Silence gives consent" is sound, one may say truthfully, if cynically, that there are ways in which a man may accomplish his own destruction, not only with the tacit approval of the American public, but with some assurance of sympathy. He may not shoot himself or attempt to take poison without incurring public censure and the restraint of law. If he jumps off a ferryboat, traffic is suspended until he is rescued and turned over to the police and the newspapers for investigation. He may not turn on the gas, even in his own house, and quietly snuff out the lives of his family and himself without encountering serious penalties under the law if he fails in his purpose. But apparently these methods are condemned because they are spectacular and mess things up, not because society cares very much about the individual or his family.

If he will go about it deliberately and with patience, he may destroy himself and his children and even their descendants; while society looks on with the single comment, "It's his own affair." The tuberculosis method and the alcohol-syphilis method are examples of well known means of self-destruction of life and efficiency. There is no more logic in preventing a man from filling his heart with lead than in preventing his filling his lungs with tubercles. Bullets and consumption are about equal in their effectiveness, but it takes the latter six months or a year longer to do its work. Syphilis is no less deadly, but it may require years of insidious progress before it kills its victim.

Why should causes of sudden death be rigidly guarded against, while the public passively permits men and women, often against their will or through ignorance, to destroy themselves by means equally certain, but less swift? It is universally conceded to be the duty of government to prevent murder in all its forms. California's "poison law" is a wise measure, and its vigorous enforcement has saved many persons from suicide or from habits leading to things far worse than death, but it is relatively of far greater importance to society that the tenement-house law should be enforced with equal energy. The enforcement of our public health laws generally would greatly reduce the needless loss of life and health which is now going on all about us. Doubtless the time will come when society's distinction between law and license will be based upon the prevention of those things which are fatal to good health as well as to life itself.

Legislation toward this end should not be erratic nor extreme. There should be no undue interference with personal liberty, and each advance should be safeguarded by the adoption of adequate administrative measures. On the other hand, there should be no shirking of responsibility for steady progress. We must make an end of approved methods of suicide and murder.

Free Health. The survey of May 13th, 1911, contained an article* by Frederick Almy, Secretary Buffalo Charity Organization Society, from which the following is quoted: "Free education was once considered radical, but it was followed by compulsory education and with compulsory education illiteracy became extinct among the native born. This free compulsory education was neither charity nor justice, though free schools began as charity. It was protection, for revenue only, for society saw that ignorance was costly and dangerous.

"Free health is now as radical, but it will come, and compulsory health will follow. No child is now allowed to be ignorant, whether its parents are willing or unwilling; but disease is both more contagious and more dangerous than ignorance. Conversely, health is more precious than knowledge, both to the individual and to the community.

"The tenement father who sees his boy go through the grammar school, and then die of tuberculosis, would rather have a live son than a wise one. The wages of unskilled labor in the tenements do not allow health, but education is given free. Which would any father choose for his child? Which should humanity or policy first give?

"Public health is quite as important to the community as public education, and we shall at some time have free doctors as well as free teachers, leaving the private doctors, like the private schools, for the few who can afford them and prefer them . . ."

There is food for serious thought in this suggestion, though it is not likely to be the solution for the present unsatisfactory conditions of medical practice.

* * *

An Advisory Consultation Fee. The "family physician" of former times has largely disappeared as a factor in modern social and economic conditions. This olden-time friend and councillor of the family or his equivalent is one of the great present needs of families which are dependent on small salaries or are otherwise limited as to income. These constitute the great majority of our population. They can not well afford the expense of two dollars to five dollars per office visit for consulting the physician they would like to employ. The result is when ill health overtakes them they resort to one of several expedients before calling in a physician:

1. They attempt to analyze their own symptoms and prescribe for themselves accordingly, or

2. They consult their neighbors and act upon their suggestions, or

3. They describe their condition to a druggist and take his advice, or

4. They go to one of the numerous "free consultation experts" for examination and treatment, or

5. They adopt various combinations of these methods and so drag out a miserable existence until nature manages to right things, or until they become so seriously ill that the physician is called in regardless of expense. This policy is expensive to the patient and handicaps the doctor in making an early diagnosis and preventing complications.

The wealthy citizen employs his physician as he does his lawyer or his tradesmen, by selecting men in whom he has confidence and paying all bills as presented; the very poor citizen may apply to free clinics and receive just as good medical advice and treatment; the moderately poor

*The Survey, Vol. XXVI, No. 7, p. 270.

citizen has neither of these sources of help open to him. An effort should be made to develop some plan whereby every family could have the benefit of medical advice in minor illnesses, and in matters of home sanitation and living conditions. The "lodge practice" of fraternal organizations and various "hospital benefit" associations are illustrations of many plans that have been devised to meet this need. Such plans, however, have the fatal defect of eliminating personal choice of one's physician, and in many instances have also been associated with schemes for defrauding the public.

It would seem possible to devise some adaptation of the lawyer's retaining fee. For example, physicians might add an advisory fee* to their regular fee bill, this fee being defined as covering a limited number of office and house visits for the purpose of advice in matters of sanitation, household arrangements for sleeping and living, the planning of the family table, and the diagnosis of minor conditions of ill health over which the parents were worried. This fee would have to be adequate to compensate the doctor for his time and expense. Probably fifty dollars a year would do this for the majority of general physicians in California, on a basis of one office or telephone "call" per week and quarterly house calls. There are few families which could not afford four dollars per month for such *preventive* medical service. A doctor with one hundred families on his list would have an annual income from this source of five thousand dollars, besides his fees for the treatment of serious cases of illness which he receives now. This would enable him to have an office-nurse and possibly a visiting-nurse to assist him. His "clients" would be entitled to a total of four hundred office visits per month which would necessitate limited consultations of eight to ten minutes each, if he were to cover this service in office hours of two to five P. M.—but a consultation of ten minutes with a mother about a boy who is known to the doctor, and concerning whose home and habits he is fully informed, will result in more intelligent advice than an hour's consultation in which the mother and doctor are strangers.

The crisis in a pneumonia case is a time filled with anxiety for both doctor and family, and the physician deserves the compensation and gratitude of the patient whom he wins back from death, but their acquaintance should not have begun at the onset of the disease; it should have begun long before, when the doctor might have had an opportunity to point out how the habits and exposure of his patient would lead to the lowered resistance for which the pneumococcus was waiting. Friendship and confidence between doctor and patient, established in the days of vigor and health, are vitally important to the most successful application of medical science in the disheartening days of battle with disease. Largely because the doctor has made no business proposition to people to aid them in their problems of minor illness, he is not consulted until the uncertain or wholly bad advice of household legends or charlatans has been tried out. Because he unwisely attempts to economize his patients' money and his own time by hurried and infrequent examinations when they do come to him, he frequently fails to win the battle, and sees his patients adopt the faith of the Christian

*The California State Medical Society invited Dr. W. F. Snow to discuss this subject at the annual meeting in April, 1910, and the plan suggested above was outlined in a paper entitled "The Doctor as the Middleman."

Scientist or of other new thought teachings advertised to make them master of their plight. Truly the doctor is the middleman.

* * *

**Evolution versus
Revolution in
Our Public Schools.**

On every side, in magazine, newspaper, on the lecture platform, and even in the teachers' institute, one hears the cry "we must adapt our school curriculum more nearly to the needs of modern life." Then follows the question, "How?" "It should be simple," one says. "Our children must read and write, they must figure, and they must be taught how to preserve their health. After that our boys should be taught the essentials of manual training and our girls the principles of good housekeeping and the care of children. If the school authorities can find time to add anything else it will be appreciated." When we forecast the future of the children entering the primary classes of our schools this month of 1911, we know that five out of every six of them will be looking for jobs by 1920. Good health will be the chief recommendation of these youngsters, who will qualify for errand-boys and counter-girls and apprentices in the trades. They will need to read and write, but grammar will be of little use to them in these days of modern slang. They will have use for only the simplest of mathematical calculations—and this about completes the list, when one comes to set it down in black and white.

The schools have these children eight years as an average, and the schools at present fail to give them the two great assets in starting their careers—a practical knowledge of health preservation and practical training in some trade. To put this instruction off till the high school is reached means to miss eighty-five per cent of the children. If the schools can not by a rapid process of evolution compass this need of our children, the public should demand that the more dangerous but instantaneous method of revolution be employed.

There are many arguments for separating our boys and girls during the years from thirteen to fifteen. This is the period when the changes of puberty cause the first real consciousness of sex. It is the period when our boys need the influence of a strong, fine man as their teacher, and our girls need the sensible mothering of a woman who knows how to teach them the principles of home-making. Some of us believe that the seventh and the eighth grades of the grammar school should be the place for radical changes in the curriculum. At the beginning of the seventh grade the boys and girls might be placed in separate rooms of the school, or in separate buildings where practicable, and enrolled for half-day sessions, the morning and afternoon sections to be reversed at the half-year point. Under such an arrangement the boys could be taught during the half-day session the essentials of manual training, of business dealings and of leading healthful lives. During the other half of the day they could work as an actual apprentice in some trade.

By arrangement with employers and labor organizations the half time of two boys could count for the full time employment of one boy. Our boys apprenticed to the trades receive now from one dollar to one dollar and fifty cents per day. If a boy of this age could *actually* work for half his time and earn *real* money, and at the same time receive credit in school for the high quality of his work, he would have a stimulus to remain in school and do his best, which is utterly lacking now.

Our girls can only learn how to be practical and resourceful wives and mothers by practicing domestic science and the care of the baby. The same half-time plan suggested for the boys could be adapted to the girls, their home time being devoted to actual practice in applying the sewing, cooking and house management lessons given during their school session. Through nurses' associations and similar agencies all the assistance necessary to supplement the resources of the schools could be obtained.

At first thought such an argument may seem far afield in discussing health conservation, but further consideration will convince any one that adequate preparation for living is a major factor in the prevention of disease. The boy who learns his trade early will establish himself and marry early. This is almost half the battle in preventing the spread of syphilis and gonococcus infections. The girl who learns how to care for a baby before her own child is born will be a great factor in reducing the infant mortality of her community. The young couple who have had the practical training which will enable them to provide the essentials of a sanitary, healthy home, no matter how limited their income may be, will not be likely to appear among the victims of tuberculosis five or ten years after their marriage.

Our schools are the most powerful agency that we can enlist in the business of saving lives and health. Those educators who are trying to break the traditional sequence of grades and studies in order to introduce manual training and domestic science should be encouraged. If necessary, the public should stand ready to "buck the center," so to speak, of the old inflexible curriculum in order to make an opening for them.

THE SECRETARY'S LOG.

Last month a series of letters was published under the title "A day with the Secretary's correspondence." Below are printed the official records of the movements of the Secretary of the State Board of Health during the first month (April, 1903) of Doctor Foster's service, and the last month (August, 1911) of the present Secretary's service. These are typical of all the months between and will serve to show how limited is the Secretary's time for correspondence and for writing bulletins, delivering addresses and attending to the many demands of office detail.

[Extracts from minutes of meeting May 11, 1903.]

"The Secretary reported the work done since the reorganization of the Board:

April 10th. Received a request from Napa State Hospital to come at once, as smallpox had broken out. I found two lady attendants down with the disease contracted while caring for a patient at the pesthouse. I consulted with the county and town health officers and quarantined the hospital for 21 days with indefinite quarantine on pesthouse.

April 17th and 18th. Inspected Chinatown in Oakland and San Francisco.

April 20th. Attended, in company with Dr. Martin Regensburger, the funeral of our late President, Dr. Matthew Gardner.

April 22d. I attended the State Medical Association with the object of getting the physicians to coöperate with the board.

April 25th. In accordance with the request of citizens of West Park, Fresno County, I visited that place to investigate the sewer system of Fresno. I found them running the sewage of the city into grass and pasturage land with no effort to care for it. I, without hesitation, pronounced it a nuisance.

April 30th. Went to Folsom to investigate the sewer system of the prison.

May 4th. Attended the meeting of the Supervisors of Contra Costa County at Martinez. They had discharged their health officer and cases of smallpox, diphtheria, were running loose. I had on April 27th appointed James Fitzgerald, of Black Diamond, temporary health officer of that place. I withdrew his appointment upon

learning they had appointed one. I informed the Supervisors that they must have a health officer and keep contagious diseases quarantined.

May 7th. Visited Chinatown in Stockton. Found no indications of infection. The town fairly clean. The work of cleaning Chinatown in San Francisco still goes on with unabated energy.

It was moved and seconded that the board approve and adopt the actions of the Secretary, and in the Contra Costa matter that if they do not follow the State law that they be compelled to do so. Carried."

[Report filed by the Secretary for August, 1911.]

"August 1st. Returned from Weed, where I had gone to investigate the pollution of Bowles Creek, in company with Chief Deputy Babcock of the Fish and Game Commission, and the district attorney of Siskiyou County.

August 2d. Spent in office working on accumulated correspondence requiring my attention.

August 3d. Completed copy for the July Bulletin.

August 4th and 5th. Working on the forms for use in enforcing the new stream pollution law, and answering miscellaneous letters from various parts of the State.

August 6th. Sunday.

August 7th. In office answering correspondence, and working on statistical material on infant mortality.

August 8th. Conference in Sacramento on the organization of the tuberculosis investigation.

August 9th. Spent the day with the directors of the pure food and hygienic laboratories in Berkeley arranging details of inspectors' work.

August 10th. Spent the day in conferences in Palo Alto and San Francisco concerning plans for the tuberculosis investigation.

August 11th. Attended to necessary correspondence in the office and left for Fresno to confer with local authorities over the rabies situation. Instructed Director Sawyer to join me there and requested President Regensburger also to go.

August 12th. The representatives of the board visited the town of Fowler in company with the county health officer. The town is greatly in need of a sewer system. It is probable that the citizens will adjust their differences of opinion and take action at an early date. In the mean time they will be kept under observation and required to appoint a health board. Spent the afternoon in conferences with the health board of Fresno and with local physicians and business men. Completed tentative arrangements for the appointment of Dr. Cross as bacteriologist for the San Joaquin Valley division of the hygienic laboratory. In the evening Dr. Regensburger, Dr. Sawyer and the Secretary attended a meeting of the local medical society and addressed the members upon various parts of the board's work.

August 13th. Sunday. We visited the Fresno sewer farm and the state farm, as President Regensburger had never seen them. Mayor Rowell kindly took us through this section of the country, and in the afternoon drove us over other sections where the irrigating problem is most interesting from a sanitary point of view.

August 14th. Attended a conference on the work of the San Francisco municipal clinic. At the present time there is no adequate way to protect neighboring cities from infected prostitutes, who may leave San Francisco in order to escape detection. Went to Palo Alto in the evening to attend a meeting of the town council. Addressed the council on the importance of maintaining their present efficient organization for health administration.

August 15th. Spent in the office at Sacramento attending to correspondence and details.

August 16th. Spent the day in investigating complaints of large numbers of dead fish being discharged from sloughs twenty-five miles up the Sacramento River. It will be necessary to make a further survey of conditions above Knights Landing as soon as possible.

August 17th. In office working on tuberculosis statistics and attending to correspondence.

August 18th. In office. Spent the afternoon in a conference with the Sacramento health officer and president concerning the prevalence of typhoid fever in the city.

August 19th. In the office.

August 20th. Sunday.

August 21st. In the office. Correspondence and working on bulletin.

August 22d. Spent the morning in Berkeley at the laboratories. In the afternoon attended a meeting of the California Society for the Prevention of Blindness, which was addressed by Professor Fuchs.

August 23d. Spent in office with correspondence.

August 24th. Went to Sisson to investigate the sewerage conditions and to address a mass-meeting in favor of a bond issue for an adequate sewer system.

August 25th. Went to Lodi to investigate the complaints filed against the sewage disposal plant.

August 26th. Spent in the office."

The schedule for the rest of the month will be:

August 27th. Leave for Los Angeles.

August 28th. Inspect Los Angeles watershed with Commissioner Powers.

August 29th. Confer with Dr. Black and Vice-President Wills relative to broadening the work of the Southern California division of the hygienic laboratory.

August 30th. Conference with the Pasadena officials and residents of Alhambra regarding the abatement of the nuisance arising from operating the Pasadena sewer farm.

August 31st. Conferences in San Francisco and at the laboratories regarding business to be brought before the board at the regular meeting September 2d.

It will be readily appreciated that the correspondence and administrative detail growing out of these numerous conferences and investigation trips is voluminous and requires the same kind of business organization and executive supervision recognized as essential in modern commercial enterprises.

It is perhaps unnecessary to add that the extracts from correspondence printed last month and these notes have been published to show something of that phase of the work which never comes to the surface in any collected way as do the statistics of a health department, yet which is work of importance that must be done.

DEPARTMENT REPORTS.

REPORT OF BUREAU OF VITAL STATISTICS FOR JULY.

GEORGE D. LESLIE, Statistician.

State Totals and Annual Rates.—The following table shows for California as a whole the birth, death, and marriage totals for the current and preceding months in comparison with those for the corresponding months of last year, as well as the annual rates per 1,000 population represented by the totals for the current and preceding months. The rates are based on an estimated midyear population of 2,488,256 for California in 1911, the estimate having been made by the Census Bureau method with slight modifications.

Birth, Death and Marriage Totals, with Annual Rates per 1,000 Population for Current and Preceding Months, for California: July.

MONTH.	MONTHLY TOTAL.		Annual Rate per 1,000 Population. 1911.
	1911.	1910.	
July—			
Births	3,003	2,698	14.2
Deaths	2,591	2,576	12.3
Marriages	2,365	2,072	11.2
June—			
Births	2,986	2,746	14.6
Deaths	2,604	2,630	12.7
Marriages	2,976	2,636	14.5

The birth and marriage totals for July, as for June, were much greater in 1911 than in 1910, while in both months the death totals were not far from the same each year.

County Totals.—The first table on the following page shows the monthly birth, death, and marriage totals for the principal counties of the State, the list being limited to counties having a population of at least 25,000 according to the Federal Census of 1910. Totals are also shown for San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), as well as for Los Angeles and Orange counties together.

City Totals.—The second table on the following page gives the birth and death totals for the principal freeholders' charter cities, the list including all chartered cities with a census population of at least 15,000 in 1910. Totals are given likewise for San Francisco in comparison with Oakland, Alameda, and Berkeley, the three cities adjoining one another on the east shore of San Francisco Bay, as well as for Los Angeles in comparison with neighboring chartered cities (Long Beach, Pasadena, Pomona, and Santa Monica).

Birth, Death and Marriage Totals, for Principal Counties: July.

County.	JULY, 1911.		
	Births.	Deaths.	Marriages.
California	3,003	2,591	2,365
Counties of more than 25,000 population (1910):			
Alameda	319	244	206
Butte	38	33	15
Contra Costa	41	28	14
Fresno	123	78	69
Humboldt	34	34	25
Kern	41	56	31
Los Angeles	709	559	539
Marin	21	16	98
Orange	42	39	102
Riverside	39	36	27
Sacramento	83	81	73
San Bernardino	71	83	41
San Diego	81	60	91
San Francisco	644	428	493
San Joaquin	55	87	56
San Mateo	37	13	26
Santa Barbara	36	17	20
Santa Clara	120	103	92
Santa Cruz	18	23	27
Solano	19	34	11
Sonoma	36	54	28
Tulare	33	42	22
Selected groups:			
San Francisco and other bay counties	1,062	729	837
Los Angeles and Orange counties	751	598	641

Birth and Death Totals, for Principal Cities: July.

City.	JULY, 1911.	
	Births.	Deaths.
Freeholders' charter cities	1,900	1,422
Cities of more than 15,000 population (1910):		
Alameda	26	16
Berkeley	34	23
Fresno	47	31
Long Beach	22	20
Los Angeles	481	364
Oakland	230	149
Pasadena	48	21
Riverside	20	25
Sacramento	58	54
San Diego	54	53
San Francisco	644	428
San Jose	51	31
Stockton	22	46
Selected groups:		
San Francisco	644	428
Oakland, Alameda and Berkeley	290	188
Total, Bay cities	934	616
Los Angeles	481	364
Neighboring cities	93	63
Total	574	427

Causes of Death.—The following table shows the classification of deaths in California for the current month, in comparison with the preceding month:

Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths for Current and Preceding Month, for California: July.

Cause of Death.	Deaths: July.	Proportion per 1,000.	
		July.	June.
All causes	2,591	1,000.0	1,000.0
Typhoid fever	47	18.1	14.6
Malarial fever	12	4.6	1.9
Measles	11	4.3	2.7
Scarlet fever	4	1.5	4.2
Whooping-cough	25	9.7	7.7
Diphtheria and croup	3	1.2	2.7
Influenza	3	1.2	2.3
Other epidemic diseases	17	6.6	6.5
Tuberculosis of lungs	320	123.5	122.9
Tuberculosis of other organs	75	29.0	28.8
Cancer	164	63.3	60.7
Other general diseases	101	39.0	42.6
Meningitis	34	13.1	15.8
Other diseases of nervous system	199	76.8	82.2
Diseases of circulatory system	397	153.2	144.4
Pneumonia and broncho-pneumonia	123	47.5	57.2
Other diseases of respiratory system	40	15.4	23.0
Diarrhea and enteritis, under 2 years	125	48.2	33.8
Diarrhea and enteritis, 2 years and over	37	14.3	16.1
Other diseases of digestive system	131	50.6	56.5
Bright's disease and nephritis	162	62.5	59.9
Childbirth	27	10.4	13.4
Diseases of early infancy	118	45.5	34.9
Suicide	48	18.5	27.7
Other violence	257	99.2	89.1
All other causes	111	42.8	48.4

In July there were 397 deaths, or 15.3 per cent of all, from diseases of the circulatory system, and 395, or 15.2 per cent, from various forms of tuberculosis; heart disease and tuberculosis thus running fairly even.

Other notable causes of death were: Violence, 305; diseases of digestive system, 293; diseases of nervous system, 233; cancer, 164; diseases of respiratory system, 163; Bright's disease and nephritis, 162; and epidemic diseases, 122.

The deaths from epidemic diseases were as follows: Typhoid fever, 47; whooping-cough, 25; malarial fever, 12; measles, 11; and all other epidemic diseases, 27.

The deaths from the four leading epidemic diseases reported for the month were distributed by counties as follows:

TYPHOID FEVER.		WHOOPIING-COUGH.		MALARIAL FEVER.	
Alameda	3	Alameda	2	Fresno	1
Amador	1	Butte	2	Kings	2
Colusa	1	Fresno	1	Napa	1
Contra Costa	2	Kings	1	Placer	1
Fresno	4	Lake	1	Sacramento	1
Humboldt	1	Los Angeles	3	San Francisco	1
Imperial	3	Merced	2	Shasta	3
Kern	2	Monterey	1	Tulare	1
Los Angeles	4	Sacramento	1	Yolo	1
Marin	1	San Francisco	4	Total	12
Modoc	1	San Joaquin	1		
Orange	1	Siskiyou	1		
Riverside	1	Solano	1		
Sacramento	2	Tulare	1		
San Bernardino	6	Ventura	3		
San Diego	1	Total	25		
San Francisco	1				
San Joaquin	3				
San Luis Obispo	1				
Santa Barbara	1				
Sonoma	2				
Stanislaus	1				
Tulare	4				
Total	47				

MEASLES.	
Alameda	2
Amador	1
Fresno	1
Los Angeles	3
Nevada	1
San Bernardino	1
San Francisco	2
Total	11

Geographic Divisions.—The following table presents data for geographic divisions, including the metropolitan area, or San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), in comparison with the rural counties of Northern and Central California:

Deaths from Main Classes of Diseases, for Geographic Divisions: July.

Geographic Division.	DEATHS: JULY.										
	All Causes	Epidemic Diseases	Tuberculosis (All Forms)	Cancer	Diseases of Nervous System	Diseases of Circulatory System	Diseases of Respiratory System	Diseases of Digestive System	Bright's Disease and Nephritis	Violence	All Other Causes
THE STATE.....	2,591	122	395	164	233	397	163	293	162	305	357
Northern California	340	19	35	21	34	49	18	40	18	60	46
Coast counties ..	171	7	26	7	21	26	9	16	7	28	24
Interior counties	169	12	9	14	13	23	9	24	11	32	22
Central California.	1,410	65	183	106	128	225	98	158	85	166	196
San Francisco ..	428	10	53	44	31	88	42	47	26	38	49
Other bay counties	301	12	42	17	23	50	26	25	23	33	50
Coast counties ..	175	3	17	13	24	33	13	19	10	16	27
Interior counties	506	40	71	32	50	54	17	67	26	79	70
Southern California	841	38	177	37	71	123	47	95	59	79	115
Los Angeles	559	16	117	26	54	81	34	62	44	43	82
Other counties ..	282	22	60	11	17	42	13	33	15	36	33
Northern and Central California	1,750	84	218	127	162	274	116	198	103	226	242
Metropolitan area	729	22	95	61	54	138	68	72	49	71	99
Rural counties ..	1,021	62	123	66	108	136	48	126	54	155	143

Morbidity Report for July, 1911.

Disease:	Cases.
Typhoid fever.....	79
Malarial fever.....	105
Smallpox.....	4
Measles.....	108
German measles.....	1
Scarlet fever.....	77
Whooping-cough.....	66
Diphtheria and croup.....	63
Influenza.....	5
Plague.....	1
Tuberculosis of lungs.....	217
Syphilis.....	10
Gonorrhoea.....	7
Poliomyelitis.....	2
Meningitis.....	3
Chicken-pox.....	30
Hookworm.....	2

REPORT OF THE PURE FOOD AND DRUG LABORATORY.

PROFESSOR M. E. JAFFA, Director.

The following announcement is of importance to the condensed and evaporated milk industries:

WATSONVILLE, CAL., July 19, 1911.

M. E. Jaffa, Esq., Berkeley, Cal.

DEAR SIR: You have asked me for an opinion on the question as to whether condensed or evaporated milk, that does not comply with the standard of purity therefor proclaimed by the Secretary of Agriculture, may be sold in this State if the actual standard be stated on the label.

Senate Bill No. 453, which finally passed the Senate on March 24, 1911, but the date of approval of which I have not at hand, among other things provides:

It shall be unlawful for any person to produce, manufacture or prepare for sale, or sell or offer for sale, or have on hand for sale, any milk, including condensed or evaporated milk, or any product of milk, that is adulterated within the meaning of this act. * * * Any label, printed matter, or advertising or descriptive matter appearing upon, or in connection with any package, parcel or quantity of milk or milk products when being sold, offered for sale, or having on hand for sale, and having reference to the article being sold, offered for sale, or on hand for sale, shall conform to the provisions of this act, and if it fails to conform to the provisions of this act such article shall be deemed adulterated within the meaning of this act. It shall be unlawful for any person under this act, when selling, or offering for sale, or having on hand for sale, milk or any product of milk to use the words "milk," "condensed milk," "sweetened condensed milk," "skim milk," "condensed skimmed milk," "evaporated cream," "cream," "butter," "cheese," "buttermilk," "ice-cream," or "ice-milk," either verbally or printed or written on any label or printed matter, in connection with the sale, or offering for sale, or having on hand for sale, of milk or any product of milk, or upon any bill of fare used in any hotel, restaurant or other places where meals are served, when the article shall not conform to the standards and provisions of section 29 of this act.

Sec. 29. Milk and the products of milk enumerated in this section shall be deemed adulterated within the meaning of this act if it or they shall not conform to the following definitions and standards: * * * Condensed milk or evaporated milk is milk from which a considerable portion of water has been evaporated and contains not less than twenty-four and five-tenths (24.5) per cent of total milk solids, including not less than seven and seven-tenths (7.7) per cent of milk fat.

Sec. 40. Whoever shall violate any of the provisions of sections 25 to 35 both inclusive or of section 37 of this act, shall be deemed guilty of a misdemeanor, and shall, upon conviction thereof, be punished by a fine of not less than twenty-five dollars nor more than two hundred dollars: or by imprisonment in the county jail for not less than ten days and not exceeding sixty days, or by both such fine and imprisonment, at the discretion of the court.

It shall be the duty of the state dairy bureau, now existing under the laws of this state, to enforce the provisions of this act; *provided*, that nothing in this act shall be construed to prevent any city or county board of health or other city or county official from enforcing the provisions of this act; *and provided*, *further*, that no conviction shall be had where a conviction is sought upon any alleged sample of milk, or product of milk, unless such sample has been taken

in duplicate, sealed and marked for identification and one of such samples left with the person accused. * * * The state dairy bureau, through its agent and secretary, and assistant agents, shall inspect the dairies, dairy cattle, creameries and other factories of dairy products, markets and other places where dairy products are prepared or handled, and keep a careful record of such inspection and report the same to the state dairy bureau and upon evidence obtained that any of the provisions of this act are being violated, the state dairy bureau, through its agent and secretary, or its inspectors, shall duly enter complaint against the party or parties, responsible for such violations and cause the same to be prosecuted.

Sec. 44. It shall be the duty of the district attorney of each and every county of this state, upon application of the state dairy bureau, or its agent and secretary, or any of its inspectors or assistant agents, to attend to the prosecution, in the name of the people, of any action brought for the violation of any of the provisions of this act within the county.

Senate Bill No. 1049, subsequently approved, provides:

The standard of purity of condensed milk and evaporated milk shall be that proclaimed and established by the secretary of the United States Department of Agriculture.

All acts and parts of acts inconsistent with the provisions of this act are hereby repealed.

Senate Bill No. 1049 repeals no part of Senate Bill No. 453 except subdivisions "(3)" of section 29. The standard prescribed by Senate Bill No. 1049 is for condensed milk and evaporated milk. "These words, presumably, were used and are to be interpreted in the same sense that they are used in Senate Bill No. 453. In the latter act they are used as meaning a particular thing, the standard for which is fixed by section 29, subdivision (3)."

This being true, Senate Bill No. 453 is still in full force and effect, with the exception that the standard for condensed or evaporated milk has been changed from that mentioned in section 29, subdivision (3) to that proclaimed by the Secretary of Agriculture.

It is still forbidden to sell condensed or evaporated milk that is adulterated within the meaning of Senate Bill No. 453, or to have on hand or offer for sale any condensed or evaporated milk that is below the standard fixed by Senate Bill No. 1049, or to use the words "condensed milk" in connection with the sale of an article which does not conform to such standard, and if not up to that standard the article is to be deemed adulterated.

Under the provisions above quoted, power to enforce the provisions of Senate Bill No. 453 is conferred upon the State Dairy Bureau and its inspectors, and it is specifically made the duty of this bureau to conduct this work. It is hardly necessary to add that this power and duty are in no manner restricted by the provisions of Senate Bill No. 1049. It does not appear, however, that the legislature intended to vest exclusively in the State Dairy Bureau the power to inspect, or to take samples of milk and institute prosecutions. Section 37 expressly provides that inspectors of the State Board of Health, or of local boards of health, may make such inspections and take samples.

I am therefore of the opinion that condensed or evaporated milk, not up to the standard of purity therefor, proclaimed by the Secretary of Agriculture, can not lawfully be sold in this state, no matter how it may be labeled; and that the power to take samples of the same and to institute prosecutions are vested in both the State Dairy Bureau and the State Board of Health.

Respectfully yours,

J. E. GARDNER,
Attorney for the State Board of Health.

PURE FOOD AND DRUG CASES REFERRED TO DISTRICT ATTORNEYS AUGUST 5, 1911.

Name of article.	Offense.	Manufacturer or jobber.	Accused dealer.
Chopped Meat -----	Adulterated. Contains sulphur dioxide-----	Arlington Supply Co. -----	Arlington Supply Co., Arlington.
Chopped Meat -----	Adulterated. Contains sulphur dioxide-----	People's Market -----	People's Market, Riverside.
Chopped Meat -----	Adulterated. Contains sulphur dioxide-----	City Meat Market, George W. Swing, proprietor.	City Meat Market, Riverside.
Chopped Meat -----	Adulterated. Contains sulphur dioxide-----	Geo. E. Turner -----	George E. Turner, Riverside.
Chopped Meat -----	Adulterated. Contains sulphur dioxide-----	Garey Avenue Market, Weigle & Boyes, proprietors.	Garey Avenue Market, Pomona.
Chopped Meat -----	Adulterated. Contains sulphur dioxide-----	New Market, A. Ball & G. V. Cook.	New Market, Santa Ana.
Pork Sausage-----	Adulterated. Contains sulphur dioxide-----	Fullerton Meat and Grocery Co.	Fullerton Meat and Grocery Co., Fullerton.
Chopped Meat -----	Adulterated. Contains sulphur dioxide-----	Central Market, S. D. Graves, proprietor.	Central Market, Long Beach.
Chopped Meat -----	Adulterated. Contains sulphur dioxide-----	Gem Market, H. Seidel, proprietor.	Gem Market, Santa Ana.
Pork Sausage-----	Adulterated. Contains sulphur dioxide-----	Gem Market, H. Seidel, proprietor.	Gem Market, Santa Ana.
Chopped Meat -----	Adulterated. Contains sulphur dioxide-----	Independent Market, H. White, proprietor.	Independent Market, Redlands.
Chopped Meat -----	Adulterated. Contains sulphur dioxide-----	E. Kramer-----	E. Kramer, San Bernardino.
Chopped Meat -----	Adulterated. Contains sulphur dioxide-----	C. L. Scheuer -----	C. L. Scheuer, San Bernardino.
Chopped Meat -----	Adulterated. Contains sulphur dioxide-----	G. A. Wetzel-----	G. A. Wetzel, San Bernardino.
Chopped Meat -----	Adulterated. Contains sulphur dioxide-----	T. A. Gaume -----	T. A. Gaume, Redlands.
Ice Cream -----	Mislabeled. Contains only 5.2% butter-fat-----	-----	Tokyo Lunch Room, Los Angeles.
Strawberry Ice -----	Mislabeled. Contains only 5% butter-fat-----	-----	Italian Ice Cream Co., Los Angeles.
Gluten Flour-----	Adulterated. Deficient in nitrogen-----	-----	Meek-Barnes Baking Co., Los Angeles.
Pure Gluten Bread-----	Adulterated. Deficient in nitrogen-----	-----	Fosgate & Reese, Los Angeles.

Food inspection decision No. 138, *in re* Saccharin in Food, has been received at the laboratory since the publication of the last monthly bulletin:

FOOD INSPECTION DECISION NO. 138.

SACCHARIN IN FOOD.

Paragraph 3 of Food Inspection Decision No. 135 is hereby modified to read as follows:

The Secretary of Agriculture, therefore, will regard as adulterated under the food and drugs act foods containing saccharin which, on and after January 1, 1912, are manufactured or offered for sale in the District of Columbia or the Territories, or shipped in interstate or foreign commerce, or offered for importation into the United States.

The above decision modifies F. I. D. No. 135, which was printed on page 628 of the April Bulletin of the Board. There seems to be an impression among some manufacturers and dealers that the time has been extended one year, whereas the time has only been extended for six months—that is, from July 1, 1911, to January 1, 1912.

NOTICES OF JUDGMENTS.

The following table containing notices of judgments recently received from the United States Department of Agriculture at the Laboratory, will be of interest to manufacturers and dealers.

As previously stated, full copies of notices, as far as they are available, will be sent free upon application to the Director of the State Food and Drug Laboratory at Berkeley, California:

Number of case and offense charged.	Name and address of defendant or manufacturer.	Specification of offense and disposition of case.
895. Alleged Misbranding of "Flavor of Lemon and Citral".	Nave-McCord Mercantile Co., St. Joseph, Mo.	Product found to contain no lemon oil; citral by wt. 0.027 per cent. Fine \$200 and costs.
896. Misbranding of coffee.	Steuart, Knatz & Co., Baltimore, Md.	Product was from an old crop of coffee termed Golden Rio. Statements on label false and misleading. Plea of guilty. Joint fine \$5.
897. Misbranding of pork and beans.	Chas. G. Summers & Co., incorporated, Baltimore, Md.	Product consisted of beans, but no pork. Plea of guilty. Fine \$10.
898. Misbranding of a Drug Product—"Indian Tar Balsam".	John B. Hurtt & Son (Indian Tar Balsam Co.) Baltimore, Md.	False and misleading statements. Proportion of opium, morphine, etc., not declared. Court imposed joint fine of \$25.
899. Adulteration of ice cream cones.	Globe Biscuit Specialty Works, Baltimore, Md.	Product in both shipments contained boric acid. Fine \$10 each case.
900. Adulteration of tomato pulp.	The Lord-Mott Co., incorporated, Baltimore, Md.	Product consisted in part of decomposed tomatoes; sand had been substituted in part for tomato pulp. Fine \$20.
901. Adulteration and misbranding of a drug product—"Pink Root."	Muth Bros. & Co., Baltimore, Md.	Product consisted of large amount of foreign substance, viz., ruellia. Fine \$10.
902. Adulteration of alfalfa hay.	Nebraska-Colorado Co., Lexington, Neb.	Product consisted in part of decomposed vegetable substance, musty, moldy and decomposed alfalfa hay. Ordered destroyed.

NOTICES OF JUDGMENTS—Continued.

Number of case and offense charged.	Name and address of defendant or manufacturer.	Specification of offense and disposition of case.
903. Misbranding of a drug product—"Stange's Genuine Anti-Spasmodic or Cramp Drops".	E. J. Abel & Co., Chicago, Ill.	False and misleading statements. Fine \$25 and costs.
904. Adulteration and misbranding of tomato catsup.	Kansas City Preserving Co., Kansas City, Mo.	Product contained bacteria estimated at 75 million per c. c., decayed tissues present and molds abundant. Product consisted in large part of putrid, decomposed and filthy animal or vegetable substance. Fine \$50 and costs.
905. Misbranding of cheese	Cuddy Cheese Co., Sheboygan, Wis.	Statement false and misleading. Short weight. Fine \$10.
906. Misbranding of a drug product—"Bradbury's Capi-Cura".	Cramer Drug Co., Boston, Mass.	Product contained acetanilide which was not declared on label. Fine \$25.
907. Misbranding of a drug product—"Septicide".	Septicide Company, Milwaukee, Wis.	Product found to be watered; containing small amount of sulphur dioxide, sulphuric acid; traces nitrites. False and misleading statements as to curative powers. Fine \$10.
908. Misbranding of a drug product—"Nyal's Headache Wafers."	Frederick Stearns & Co., Detroit, Mich.	Product consisted of acetanilide, caffeine, and starchy material. False and misleading statements as to curative powers. Fine \$2.
909. Misbranding of a drug product—"Nichols' Compound Kola Cordial"	Billings, Clapp & Co., Boston, Mass.	Product was not manufactured by Nichols, and was not Kola; did not contain proportion and amounts of cocaine, kola nut, coca leaves and strychnine which label represents it contained. Fine \$25.
910. Misbranding and alleged adulteration of vinegar.	Spielmann Bros. Co., Chicago, Ill.	Product consisted in part of distilled vinegar or a dilute solution of acetic acid. Product offered for sale at public auction. Costs from proceeds to be paid, and residue, if any, covered into treasury of U. S. Marshal to obliterate all marks, brands, etc, as to contents of said barrels.
911. Adulteration of ice cream cones.	Southern Pacific Co., Pier 48, North River, New York City.	Product found to contain boric acid. Ordered destroyed.
912. Misbranding of maraschino cherries.	Isaac Rheinstrom & Sons Co., Kentucky.	Cherries were not maraschino cherries nor were they packed in maraschino. Joint fine of \$5.
913. Misbranding of stock feed.	Acme Milling Co., Talbott, Tenn.	Product misbranded as to percentage of protein. Fine \$10 and costs of prosecution.
914. Misbranding of cheese	Northern Wisconsin Produce Company, Manitowoc, Wis.	Product labeled 1,656 pounds whereas in truth and in fact they weighed only 1,602½ pounds. Released under bond after paying cost.
915. Adulteration and misbranding of olive oil.	Arturo Marchesini, Chicago, Ill.	Product contained about 25 per cent cottonseed oil. Fine \$10 and costs.

NOTICES OF JUDGMENTS—Continued.

Number of case and offense charged.	Name and address of defendant or manufacturer.	Specification of offense and disposition of case.
916. Alleged adulteration and misbranding of olive oil.	Gaetano Marchesini, New York City.	Product consisted largely of cotton-seed oil. Sentence suspended.
917. Adulteration and misbranding of vinegar.	P. H. Sugrue & Co., Cleveland, Ohio.	Product consisted wholly or in part of a mixture of dilute acetic acid or distilled vinegar, and a foreign material to imitate cider vinegar. Fine \$25 and costs.
918. Misbranding of lemon flavor.	William Edwards Co., Cleveland, Ohio.	Mislabeled as to percentage of lemon oil. Fine \$25, and costs.
919. Misbranding of a drug product—"The Infallible Headache Tablet."	Infallible Headache Tablet Company, Columbia Cross Roads, Pa.	False and misleading statements; acetanilid present. Fine \$25 and costs.
920. Adulteration of Jamaica ginger compound.	Iler & Co., Omaha, Neb.	Product had been mixed with capsicum so as to reduce and injuriously affect the quality of said article. Fine \$25 and costs.
921. Adulteration of tomato catsup.	Robert Cuddihy, Henry B. Corey (Alart & McGuire), New York City.	Product consisted in part of a filthy, decomposed and putrid animal or vegetable substance. Fine \$100.

REPORT OF THE STATE HYGIENIC LABORATORY FOR JULY.

WILBUR A. SAWYER, M.D., Director.

Rabies.

Examinations made in the State Hygienic Laboratory show that rabies is spreading steadily northward, and is at present very active among dogs in Fresno County. There is every indication that the disease will continue to spread until it is curbed throughout an extensive area by the muzzling of all dogs at large, and the destruction of ownerless dogs. Rabies can be more easily eliminated by proper measures than any of the other important epidemic diseases.

The heads of animals suspected of rabies are frequently received for examination at the State Hygienic Laboratory. Microscopic examinations for Negri bodies, which are characteristic of rabies, and inoculation of animals when necessary, indicates the presence or absence of the disease. A definite diagnosis is very important to those who have been bitten by rabid animals, because the administration of the Pasteur treatment is often delayed until the evidence is conclusive.

Between the beginning of the present rabies epidemic, about November 1, 1909, and April 1, 1911, laboratory examinations of animals' brains for rabies were made as follows:

	Positive.	Negative.	Total.
At the State Hygienic Laboratory.....	44	36	80
At the Laboratory of the Los Angeles Health Department....	64	39	103
At the Laboratory of the Long Beach Health Department.....	4	0	4
At the Laboratory of Dr. Stanley P. Black in Los Angeles.....	52	5	57
	<u>164</u>	<u>80</u>	<u>244</u>

The cases proving positive on examination were distributed among the

various kinds of animals as follows: 152 dogs, 6 cats, 3 horses, 2 cows, and 1 goat. At least 68 human beings were bitten by these animals.

The accompanying map shows the distribution of the cases found positive by laboratory examination previous to April 1, 1911. The map also indicates the location of the five human deaths from rabies (hydrophobia). A fuller account of the situation in California with regard to rabies may be found in the July (1911) number of the California State Journal of Medicine.



Between April 1, 1911, and August 4, 1911, the heads of 25 animals were examined at the State Hygienic Laboratory and 15 were found to be positive. These 15 cases came from the following counties, and show that the center of activity of the epidemic is moving northward: Fresno County, 6 cases; Kings County, 3; Tulare County, 3; San Bernardino County, 2; Riverside County, 1.

Those who have occasion to send heads for examination are requested to follow strictly the directions given in the following circular of the State Hygienic Laboratory:

DIRECTIONS FOR SENDING MATERIAL FOR EXAMINATION FOR RABIES (HYDROPHOBIA).

The diagnosis is made only on request of local health officers, physicians, or practicing veterinarians of the State of California.

Where possible, the animal suspected of having rabies should be confined and kept under observation until it dies. If it is killed at an early stage of the disease, diagnosis from microscopic examination is apt to be difficult, and results are delayed by the necessity for other tests. A rabid animal generally dies within six days. If the animal is well at the end of ten days, rabies may be excluded and examination of the brain is not necessary.

If it is necessary to kill a rabid animal, it should not be shot or injured in the head. The brain is the part required for examination, and injury to it makes diagnosis difficult or impossible.

After the death of the animal, the head should be removed by cutting through the neck far enough back to leave the skull intact. Care should be taken not to cut or lacerate the hands during the operation.

Pack the head in ice in a pail or box. An excellent way of packing is to place in a large pail a layer of sawdust or shavings, a layer of ice, then the head. Cover with an abundant layer of ice and add a top layer of sawdust. A suitable cover should be applied. Mark plainly, giving the name of the shipper. Send by express, without delay, to the State Hygienic Laboratory, Berkeley, California. Express charges must be prepaid.

Fill out the blank furnished by the laboratory for the recording of facts concerning material to be examined for evidence of rabies. If such a blank is not at hand, write a letter giving the data indicated by the following:

Sender's name (physician or veterinarian)_____Address_____

Health officer's name_____Address_____

Name of owner of animal_____Address_____

Description of animal whose head is sent_____

Was animal killed or allowed to die?_____How long sick?_____

Diagnosis from symptoms_____

Were other animals bitten by this one?_____

Was any human being bitten?_____

Is report to be sent by telephone (collect), telegraph (collect), or mail?_____

A letter describing in detail the local situation with regard to rabies will be appreciated.

Summary of Examinations made in the California State Hygienic Laboratory during the month of July, 1911.

Main Laboratory at Berkeley:

Condition suspected:	Positive.	Negative.	Total.
Diphtheria	10	28	38
Malaria	--	6	6
Rabies	3	1	4
Tuberculosis	1	17	18
Typhoid	8	27	35
Water pollution	--	11	11
Gonorrhea	1	1	2
Miscellaneous	--	2	2

Total number examinations 116

BUREAU OF PUBLIC HEALTH INFORMATION.

The following letter has some interesting statements, which are worthy of careful consideration. California's climatic conditions make this problem of infant mortality and milk much less serious and complicated, but it is none the less important that we solve it.

COMMITTEE FOR THE REDUCTION OF INFANT MORTALITY OF THE NEW YORK MILK COMMITTEE.

August 2, 1911.

To Health Officers of Cities having over 7,000 Population:

May we point out to you the following significant results (brought out on the enclosed slips) of New York City's baby-saving campaign:

1. From January 1st and through to July 29th this year, 888 fewer babies died than for the same period in 1910.

2. During the hot spell, July 1st-15th, the deaths from diarrhoeal diseases decreased from 576 in 1910 to 270 in 1911. For the two weeks ending July 29th, there was a continued decrease of 322 deaths from these causes from 1910.

3. In three of the most congested districts, where milk depots are located this year, the mortality for 1910 and 1911 is as follows:

	1910.	1911.
Fourteenth Ward -----	76	11
Seventeenth Ward -----	43	20
Twenty-sixth Ward -----	43	11

4. In nine wards, in Brooklyn, where there are no milk stations, there was a reduction of 2 per cent in deaths from last year's record during May and June; the wards having milk stations showed a reduction of 43 per cent in the same two months.

5. Before the summer is over, the "life-savers" hope to cut last summer's loss by 2,000.

These results have led us to believe what we all started out to prove:

- 1. That hot weather in itself does not kill babies.
- 2. That the two surest ways of reducing infant mortality are to show mothers how to take care of their babies, and to put clean, safe milk within the reach of poor and rich alike.
- 3. That the responsibility for saving babies can be fairly and squarely lodged with state and city authorities—any city can save babies if it wants to do so.

New York is only one of many communities which are trying to prevent needless baby deaths—the campaign is nation wide.

Will it help your city if we publish weekly bulletins showing facts for cities all over the country?

Will you send us the data called for on the enclosed cards each week from now through August? If you are too busy to fill out the card yourself, will you not designate some person in your office, who shall regularly furnish us with this information?

Very truly yours,

COMMITTEE ON REDUCTION OF INFANT MORTALITY.

PARTIAL LIST OF CITY HEALTH OFFICERS.

<i>City.</i>	<i>Health Officer.</i>	<i>City.</i>	<i>Health Officer.</i>
Alameda	Dr. L. W. Stidham	Mountain View	Dr. A. H. McFarlane
Alhambra	Dr. F. E. Corey	Napa	J. D. Treadway
Alturas	Dr. John Stille	National City	Dr. Theo. F. Johnson
Anaheim	Dr. J. L. Beebe	Nevada City	Hugh Murchie
Anderson	Dr. J. H. Soothill	Newman	Dr. H. V. Armistead
Antioch	E. C. Worrell	Oakdale	Elmer E. Endicott
Auburn	Jas. H. Breslin	Oakland	Dr. Edward N. Ewer
Azusa	Dr. L. W. Atkinson	Ocean Side	Dr. R. S. Reid
Belvedere	Dr. Florence Scott	Ocean Park	Dr. W. M. Kendall
Benicia	Dr. W. L. McFarland	Ontario	Dr. C. S. Orr
Berkeley	Dr. J. J. Benton	Orange	Dr. F. L. Champline
Biggs	Dr. B. Caldwell	Oroville	Dr. W. F. Gates
Bishop	Dr. J. W. Shute	Oxnard	Dr. Ralph W. Avery
Blue Lake	Dr. G. N. Wood	Pacific Grove	E. B. Richi
Bakersfield	S. D. Mullens	Palo Alto	Hubert O. Jenkins
Brawley	Dr. L. L. Lindsey	Pasadena	Dr. Stanley P. Black
Calexico	Dr. H. G. Richter	Petaluma	Dr. J. M. Proctor
Chico	G. H. Taylor	Pittsburg	Dr. F. S. Gregory
Chino	Dr. John W. Callnon	Placerville	P. J. Hall
Coalinga	Dr. H. S. Warren	Pleasanton	Dr. S. J. Wells
Colton	Dr. J. A. Champion	Pomona	Dr. T. J. Wilson
Colusa	Dr. W. T. Rathbun	Porterville	Dr. O. C. Higgins
Coram	Geo. H. Thomas	Piedmont	Geo. T. Burchael
Corning	Dr. W. F. Maggard	Randsburg	E. B. McGinnes
Corona	W. H. Chapman	Red Bluff	Dr. G. J. Bailey
Coronado	Dr. Raffaele Lorini	Redding	L. D. Poole
Cottonwood	Dr. A. B. Gilliland	Redlands	Dr. H. Forline
Davis	Dr. W. E. Bates	Redondo Beach	Dr. D. R. Hancock
Doris	Dr. A. A. Atkinson	Redwood City	Dr. J. L. Ross
Dixon	Dr. R. L. Rlerson	Richmond	Dr. Chas. R. Blake
Dunsmuir	Dr. E. J. Cornish	Rio Vista	Dr. A. J. McKinnon
East San Jose	Dr. W. A. Law	Riverside	Dr. Thos. R. Griffith
Elsinore	Dr. Hugh Walker	Rocklin	Dr. S. P. Rugg
Emeryville	Dr. A. T. Drennan	Roseville	Dr. R. H. Ashby
Escondido	Dr. David Crise	Sacramento	Dr. Wm. K. Lindsay
Etna Mills	Dr. W. H. Haines	Salinas	S. A. McCollum
Eureka	Dr. L. A. Wing	San Bernardino	Dr. C. V. McConnico
Exeter	Dr. A. D. McLean	San Diego	Dr. F. H. Mead
Fairfield	Dr. S. G. Bransford	San Francisco	Dr. W. F. McNutt, Jr.
Ferndale	Dr. C. A. Phelan	Sanger	Dr. T. F. Madden
Fort Bragg	Dr. L. C. Gregory	San Jose	Dr. H. C. Brown
Fort Jones	Thos. Bransom	San Jacinto	Charles Long
Fowler	Dr. W. T. Crawford	San Luis Obispo	W. F. Cook
Fresno	Dr. Geo. H. Aiken	San Rafael	Dr. W. F. Jones
Gilroy	Dr. John A. Clark	San Mateo	Dr. S. G. Goodspeed
Glendale	Dr. R. E. Chase	San Leandro	P. C. DuBois
Grass Valley	Paul F. Sears	Santa Ana	Dr. J. I. Clark
Gridley	Dr. L. L. Thompson	Santa Barbara	Dr. D. A. Conrad
Hanford	Dr. R. W. Musgrave	Santa Cruz	Dr. H. E. Piper
Hayward	Dr. F. W. Browning	Santa Clara	Dr. J. F. Beattie
Healdsburg	Dr. J. W. Seawell	Santa Monica	Dr. W. H. Parker
Hemet	Dr. A. B. Eadie	Santa Paula	Dr. G. E. ApLynne
Hermosa Beach	E. McCoskey	Santa Rosa	Dr. Jackson Temple, Jr.
Hollister	Dr. R. G. Curtis	Santa Maria	Dr. O. P. Paulding
Hollywood	E. O. Palmer	Sawtelle	Dr. A. B. Hromadka
Huntington Beach	C. F. Sorenson	Selma	Dr. F. H. Williams
Huntington Park	Dr. W. Thompson	Sierra Madre	Dr. R. H. Mackerras
Inglewood	Dr. H. A. Putnam	Sebastopol	Dr. J. J. Keating
Jackson City	F. V. Sanguinetti	Slisson	Dr. G. L. Gouguet
Kernville	J. W. Sumner	South Pasadena	Dr. C. A. Whiting
Lakeport	Dr. Jabez Banks	South San Francisco	Dr. H. G. Plymire
Lincoln	Dr. G. W. Davis	Stockton	Dr. S. W. R. Langdon
Lindsay	Dr. Walter W. Tourtillot	Suisun	Dr. S. G. Bransford
Livermore	Dr. H. G. McGill	Taft	J. W. Bursell
Lodi	Dr. F. W. Colman	Tehachapi	R. M. Spencer
Long Beach	Dr. W. H. Newman	Tracy	Dr. J. G. Murrell
Los Angeles	Dr. L. M. Powers	Tulare	Dr. J. B. Rosson
Los Banos	Dr. J. L. McClelland	Turlock	Dr. E. L. Clough
Los Gatos	Dr. C. K. Small	Ukiah	Dr. J. Liftchild
Loyalton	Dr. G. L. Coates	Upland	W. C. Redman
Madera	Dr. Mary R. Butin	Vacaville	Dr. A. P. Finan
Maricopa	Thad. Cheeney	Vallejo	Dr. F. T. Bond
Martinez	Dr. E. E. Brown	Ventura	J. H. Hardey
Marvsville	Wm. Meeks	Watsonville	Dr. F. H. Koepke
McCloud	Dr. R. T. Legge	Watts	Dr. E. J. Richle
McKittrick	G. M. Chitwood	Wheatland	Dr. A. W. Foskav
Merced	Dr. C. H. Castle	Willits	Dr. W. L. Blodgett
Mill Valley	Capt. M. Staples	Willows	Thos. Kinkade
Modesto	Dr. J. J. Knowlton	Winters	Dr. J. H. Halle
Mojave	A. Smith	Whittier	Dr. W. H. Stokes
Monrovia	Dr. R. D. Adams	Woodland	P. Scott
Monterey	Edward Allen	Yreka	E. W. Nolan
Morgan Hill	Dr. D. W. Watt		

LIST OF COUNTY HEALTH OFFICERS.

County.	Health Officer.	Address.
Alameda	Dr. C. L. McKown	Niles
Alpine*	County Recorder Frank Smith	Markleeville
Amador	Dr. E. E. Endicott	Jackson
Butte	Dr. L. Q. Thompson	Gridley
Calaveras	Dr. E. W. Weirich	Angels Camp
Colusa	Dr. C. A. Poage	Colusa
Contra Costa	Dr. F. S. Gregory	Pittsburg
Del Norte*	County Recorder N. G. McVay	Crescent City
El Dorado	Dr. L. M. Leisenring	Placerville
Fresno	Dr. W. T. Burks	Fresno
Glenn	Dr. J. A. Randolph	Willows
Humboldt	Dr. E. H. Bryant	Eureka
Imperial	Dr. Virgil McCombs	El Centro
Inyo	Dr. I. J. Woodin	Independence
Kern	Dr. G. M. Bumgarner	Bakersfield
Kings	Dr. Ralph Motherol	Hanford
Lake	Dr. W. E. Upton	Kelseyville
Lassen	Dr. W. E. Dozier	Susanville
Los Angeles	Dr. E. O. Sawyer	Los Angeles
Madera	Dr. Mary R. Butin	Madera
Marin	Dr. J. H. Kuser	Novato
Mariposa	Dr. F. L. Wright	Mariposa
Mendocino	Dr. J. Litchfield	Ukiah
Merced	Dr. C. H. Castle	Merced
Modoc	Dr. John Stille	Alturas
Mono*	County Recorder Geo. Delury	Bridgeport
Monterey	Dr. Garth Parker	Salinas
Napa	Dr. E. Z. Hennessey	Napa
Nevada	Dr. Carl P. Jones	Grass Valley
Orange	Dr. John Wehrly	Santa Ana
Placer	Dr. G. H. Fay	East Auburn
Plumas	Dr. F. D. Walsh	Quincy
Riverside	Dr. George E. Tucker	Riverside
Sacramento	Dr. Hugh Beattie	Elk Grove
San Benito	Dr. J. M. O'Donnell	Hollister
San Bernardino	Dr. Phillip M. Savage	San Bernardino
San Diego	Dr. Nathan Hunt	San Diego
San Francisco	Dr. W. F. McNutt, Jr.	San Francisco
San Joaquin	Dr. Wm. Friedberger	Stockton
San Luis Obispo	Dr. H. M. Cox	San Luis Obispo
San Mateo	Dr. W. G. Beattie	Colma
Santa Barbara	Dr. J. C. Balnbridge	Santa Barbara
Santa Clara	Dr. William Simpson	San Jose
Santa Cruz	Dr. W. E. Congdon	Santa Cruz
Shasta	Dr. F. Stabel	Redding
Sierra	Dr. R. E. Davy	Downsville
Siskiyou	Dr. F. J. McNulty	Yreka
Solano	Dr. S. G. Bransford	Suisun
Sonoma	Dr. S. S. Bogle	Santa Rosa
Stanislaus	Dr. F. R. De Lappe	Modesto
Sutter	Dr. J. McFadyen	Yuba City
Tehama	Dr. J. S. Cameron	Red Bluff
Trinity	Dr. D. E. Fields	Weaverville
Tulare	Dr. M. E. Pettit	Visalia
Tuolumne	Dr. Wm. Lyman Hood	Sonora
Ventura	Dr. A. A. Maulhardt	Oxnard
Yolo	Dr. W. J. Blevins	Woodland
Yuba	Dr. J. H. Barr	Marysville

*This county has not been able to arrange with any physician to serve as county health officer.

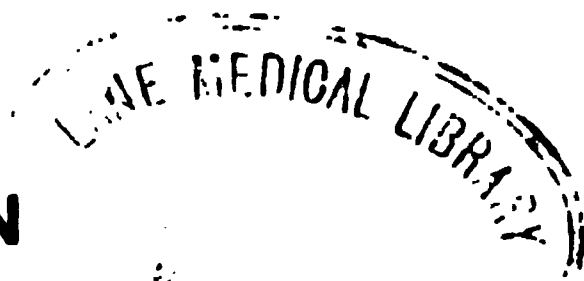
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HEALTH LEGISLATION IN 1911.

Part I. A Bibliography of the New Health Laws.

CALIFORNIA STATE BOARD OF HEALTH

MONTHLY BULLETIN



Vol. 7

SEPTEMBER 1911

No. 3

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REGULAR MEETINGS

The meetings of the California State Board of Health are held regularly the first Saturday of each month, but the quarterly meetings required by law to be held at the Capitol of the State are ordinarily designated as January, April, July. and October.

By courtesy of the University of California the Food and Drug Laboratory and the Hygienic Laboratory are located in University buildings at Berkeley, California.

Address all general communications to the
SECRETARY, Sacramento, California.

SEPTEMBER BULLETIN.

COMMENTS.

Health Laws and Near-Laws in 1911. Twenty-eight hundred and seventy-eight bills were introduced during the 1911 session of the legislature and were passed to print. Some of these quietly died in committee without a struggle; others fought their way back to the floor and partly through the hazards of the other house before they died. Nine hundred and thirty-two of them reached the Governor's desk, to await their fate. Only seven hundred and fifty-three emerged in all the glory of being real statutes. The fight having been won, the majority of active supporters of these new laws will go about their business and give no thought to their enforcement. And so each new law, like a young college graduate filled with ideals and enthusiasm, goes into a strange world to make its way unaided. When we consider the inadequate nursing they receive during their first years of life, it is no wonder that many excellent laws become dead letters in their infancy.

The thirty-ninth legislature enacted some new public health and sanitary laws which are destined to have great influence if they are properly enforced. The new stream pollution law is one of these. The rapid advance now being made in improving methods of sewage disposal and of water purification make advisable a flexible law which may be adopted to the specific problems of each community. The new law was drawn along these lines and its enforcement should be of great benefit. The revision of the list of quarantinable and reportable diseases is a long step forward. The amended vaccination law is a more comprehensive statute, with better administrative machinery than was provided by the old law. The new law for reporting occupational diseases marks the beginning in the United States of advance in a new field of preventive medicine.

The provision for an investigation of tuberculosis will, no doubt, pave the way for comprehensive legislation for the control of this great enemy of California; and the increase of the appropriations for the State Board of Health will make better laboratory facilities immediately available for the control of this and other diseases.

The shortening of the hours of labor for women, and the apportionment of school moneys on the basis of average daily attendance are measures which will indirectly be of great influence toward encouraging high standards of health.

Among the near-laws (bills passed by the Senate and Assembly but not approved by the Governor) there were only three considered of special importance by the State Board of Health. The first of these—the County Board of Health bill—provided for a more stable form of health organization for the country and rural districts of the State than exists under the present system of appointees subject to the pleasure of the supervisors. The important feature of this bill was the provision for local sanitary inspectors in those counties requiring regular inspection service. The bill providing for the inspection of hospitals and sanatoria covered a greatly needed protective measure. At the *present time the State* licenses nurses, druggists, physicians, optome-

trists and others who should be properly trained in their work before assuming the responsibility of practice, yet the State does nothing to safeguard the citizen against a charlatan hospital or one inadequately equipped to give the kind of service advertised. The Contagious Disease Fund was important as a measure placing in the Governor's hands the means for meeting promptly any serious emergency in the control of dangerous diseases. The bubonic plague, which is known to be smoldering in California, was the special cause for urging this bill. It is to be hoped that it will not flare up during the next year and a half, during which time the State will be without funds to effectively combat it.

Of the many other bills that related directly or indirectly to health conservation, some became laws; while others, deservedly or undeservedly, were left on the bill files. The tenement house bill became law, while the hotel inspection bill was lost. The bill for the control of smelter smoke, which caused much discussion, failed to make its way through both branches of the legislature. Two bills which created a great deal of discussion, and which would indirectly have been of some importance to public health, were the Medical School Inspection bill and the bill to enjoin houses of prostitution. Both these bills encountered much opposition, but from entirely different classes of people; both were bills that in their purpose are excellent; but both were bills that present many impractical features and were wisely tabled until public opinion has reached a clearer understanding of these important questions. Through one of those curious misinformations which occasionally become current the Leslie Medical School Inspection bill was thought to have the active support of the medical profession, whereas probably the majority of physicians and teachers who know of the bill at all, were opposed to it as too impractical, too far reaching in its attempted control of the schools and unwise in its creation of unnecessary administrative machinery.

In a future issue of the bulletin the Governor will review his consideration of the health conservation bills. This will be invaluable as a basis for future legislative progress. In the meantime it is distinctly "up to" the State Board of Health, and local officials and citizens to see that the new health laws are intelligently and fully enforced.

The Governor and His Pruning Shears. The 1911 legislature convened in January to face the task of separating the wheat from the chaff in some three thousand bills, and thereafter "the mills of God ground slowly, yet they ground exceedingly small." Every fair-minded advocate of any of these bills must realize that the limitations of human endurance and concentration necessarily precluded the passage of more than a small percentage of them, if each were to receive the personal attention of every legislator or even thorough investigation by the legislative committees. Therefore, it was certain at the outset that a very large number of bills would be left on the files unless the legislators chose to accept the word of proponents as to the wisdom and practicability of their bills. This was distinctly contrary to general sentiment among the members of the thirty-ninth legislature. Nine hundred and thirty-two bills eventually reached the Governor's desk.

To appreciate something of the task before the Governor on March

27, 1911, when the legislature adjourned, one must first read these bills, then ask himself which of these within the limits of his personal knowledge seem necessary and likely to accomplish the purpose for which they were framed; after eliminating these he must estimate the amount of reading and study he must give to the interests and activities involved by the others before an intelligent basis for decision can be reached. To appreciate still further the Governor's difficult task of using the pruning shears with justice and thoroughness one would have to hear the arguments of the proponents and those of the equally resourceful and determined opponents of each bill. One may say that the Governor should have accepted the combined judgment of the Senate and Assembly, but this argument is not tenable except for a comparatively small number of bills which undoubtedly received full consideration by the members of both branches of the legislature.

The Governor at a future time has promised to give his own reasons for pruning the public health laws, but a study of the medical unrest in California to-day will demonstrate that the Governor's impression of medicine and of the health conservation movement must be that of a house divided against itself. The arguments of the American League for Medical Freedom, the Anti-Vaccination League, and various other well-meaning but misguided organizations, together with the clever arguments of influential persons who represent unknown combinations of "big business," will continue to have tremendous weight with the public until the general principles of modern medicine and sanitation are understood by our citizens.

It is evident that the Governor pruned largely along the lines indicated by popular demand, and laid over for future consideration some bills which did not seem to him urgent. The advocates of health conservation have a year now to study their problem, to advise with their Governor, and to demonstrate to the public the need for important measures which should be made law at the session of 1913.

Sane Socialism. Among the new laws resulting from the activities of the 1911 legislature are several which are either viewed with alarm as being decidedly socialistic in tendency, or hailed with delight as additional evidence that the government of the people is at last to be operated for the benefit of the people. Mention has been made of the eight-hour law and of the law requiring the reporting of occupational diseases; the employers' liability act likewise has in it possibilities of great benefit to the health conservation movement. There are a number of other similar acts which will probably influence the public health favorably.

In general, all acts designed to improve labor conditions, to safeguard the stability of building and loan associations, of life and health insurance, of savings banks, etc., are indirectly of importance in encouraging men and women on small incomes to provide for the future. A sanitary home, proper food, work within each man's strength and wholesome entertainment are the foundations upon which long life and health must be built. Every legislative measure which seeks by fair means to obtain these things for the world's workers should be encouraged. All that is sane in socialism along these lines should become *a part of all political platforms*. The better conservation of the *American home is becoming one of the great issues of the twentieth century*.

Upon the outcome will depend many things vital to the economic, physical and moral progress of the nation.

Medical Freedom. The real bone of contention during the strenuous debates on medical laws that occurred in both committee and floor sessions of the 1911 Senate and Assembly was one of standards of education. This issue was clouded intentionally or unintentionally by the partisans of both sides.

The history of medicine shows a succession of battles-royal between opposing schools of medical theory from the earliest records down to the present century. But the application of the exact methods of science have revolutionized the practice of medicine in the past fifty years, and to-day there is no valid ground for the existence of any "system" or "school" of medicine. Pasteur demonstrated to the whole world that there is no such thing as *spontaneous generation of life* and that only *like produces like*. Koch and Lister developed practical methods of applying these fundamental truths to medicine and surgery, with the result that a large number of diseases which we of to-day call "germ" diseases dropped out of the realm of speculation into that of ordered scientific knowledge. Virchow by his monumental labors in the study of pathology laid the foundation for the transfer of another large group of diseases to the solid ground of scientific fact. The physiologists and pharmacologists have added to this list of scientifically explained diseases. And so the scientific basis for modern medicine has grown in all the years from the times when Vesalius took the risk of death and condemnation by the church to obtain a human skeleton for study, down to the days when American army physicians and soldiers took more risks in solving the yellow fever riddle than Lieutenant Hobson took in entering the Santiago harbor.

As these discoveries of the medical sciences have appeared, many of them have been found to have applications in other fields than that of medicine. The commercial world utilizes them in thousands of ways from the ripening of cream and flavoring of cheese to enriching the soil by the use of nitrifying bacteria. It does not require a medical mind to see that the kind of scientific methods which apply to the manufacture of a serum for saving the lives of a farmer's hogs from hog-cholera are likely to be equally dependable in the manufacture of a serum for saving the life of the farmer's child ill with diphtheria. Nor does it require a medical training to see that the day of "Schools for Medicine" has passed, now that science has provided accurate methods of examining the body to find out why it does not run properly. To determine this fact for the human body differs in no essential way from determining it for an automobile. It is just as dangerous a procedure to let an untrained man, who calls himself a doctor of something or other, tinker with the human body as it is to trust one's automobile to a blacksmith simply because he has a theory as to what is wrong and has enough tools in his shop to repair any part of the machine.

The State is concerned only in protecting the people from incompetent practitioners and known medical crooks regardless of what they may call themselves. It would seem that a four-year course after graduation from high school would be a reasonable minimum for equipping *a practitioner for facing* intelligently the complicated problem of ill *health and the serious emergencies* of accidents and the sudden crises

of disease. To require of all practitioners a knowledge of anatomy, physiology, bacteriology and other fundamental sciences of medicine is a needed safeguard and one which in no way limits the freedom of any practitioner to employ such methods of healing as he may consider best. Nor does such a requirement necessitate the wasting of time by any practitioner upon methods of therapeutics which he has decided in advance he does not intend to use. There is a vast difference between medical freedom and unwarranted medical license. The public is not concerned in any controversy among Christian Science practitioners, osteopaths, naturopaths, homeopaths, "regular" physicians, etc., as to which group is most satisfied with its methods of treating disease. Each method of treatment employed has its value and advantageous application and in so far as it is sound it is so because based upon scientific principles of anatomy, physiology or other sciences which owe no allegiance to any so-called "School of Medicine" whatsoever. The public is interested in getting results and has the right to protect itself by legislation from incompetency, but the "trade" names under which practitioners may choose to pursue their occupation is largely a matter of indifference.

California's present medical laws are not satisfactory and never will be until some common standard of efficiency is set by the legislature for all persons who propose to diagnose and treat disease. The significance of the quarrel which has developed between the "National League for Medical Freedom" and the American Medical Association lies in the fact that health conservation is made the apparent bone of contention. It is vitally important to the public health that the citizens understand the issues involved in this attack of the "League of Medical Freedom" on the so-called "dominant school," and that they insist that their health administrations be kept free from it. What we may do in the way of protecting ourselves from the personal danger attendant upon consulting an incompetent practitioner of some medical "system" has nothing to do with what we should do in protecting ourselves from preventable disease through the agency of sanitary laws and strong public health departments.

**Between the Devil
and the Deep Sea
of Deceit.**

One of the laws for which California is the pioneer is the registration law for syphilis and gonococcus infections. These diseases are admittedly among the great causes of needless sickness, inefficiency and death, yet health departments have hardly made a beginning in their control. The reason for this is not that science has failed in demonstrating things to do, but health departments have not had the courage or power to devise the necessary administrative machinery. On the one hand have stood the allies of these diseases—prostitution, drunkenness, crushing poverty with the multiplicity of selfish or uninformed interests behind them; on the other hand has stood the unthinking, inconsistent physician blindly adhering to his "duty to his patient"—a duty which he maintains, warrants secrecy even to the point of distorting the truth in filling in death certificates and in a hundred other ways for which the general public pays a heavy penalty in lives, money and happiness.

This is truly a difficult situation, but medical ethics can be modified in time, and as far as the Devil is concerned,—well, the Devil has had to abandon a great many of his methods, and there is hope.

A BIBLIOGRAPHY OF NEW PUBLIC HEALTH LAWS—1911.

By JOHN F. LEINEN, Assistant to the Secretary, State Board of Health.

The following bibliography has been arranged under group headings with a brief outline of the purpose of the law. Where some law previously in operation has been materially changed an explanation of the change is made.

SEWAGE DISPOSAL AND WATER SUPPLIES.

Chapter 339. The Stream Pollution Law.

This act makes it unlawful to discharge any sewage or other feculent matter into any body of water used or where intended for human or animal consumption. It differs from the stream pollution law passed in 1907 in the following particular: when a city, institution, etc., desires to discharge sewage or other feculent matter into a body of water it must first get permission from the State Board of Health, whereupon a thorough investigation as to the kind of substance proposed to be discharged shall be made before permission may be granted. This act delegates all authority for protecting the streams to the State Board of Health.

Chapter 23. Sewer Districts.

This law authorizes the legislative body of a municipality to create sewer districts within its boundaries, provide a system of sewer bonds for the construction of sewers therein, to provide for the payment of said bonds, the proceeds of such to be placed in the municipal treasury to the credit of the proper sewer district fund, to be applied exclusively to the purposes and objects mentioned in the city ordinance.

Chapter 251. Right of Eminent Domain.

This act relates to the purposes for which the right of eminent domain may be exercised and among other objects in behalf of which it may be applied, provides for the disposal of sewage of an incorporated city, city and county, or of any village or town, whether incorporated or unincorporated, or of any settlement consisting of not less than ten families, or of any buildings belonging to the State, or to any college or university, also the connection of private residences and other buildings, through other property, with the mains of an established sewer system in any such city, city and county, town or village.

Chapter 389. Sanitary Districts.

Provision for the formation, government, operation and dissolution of sanitary districts in any part of the State for the construction of sewers and other sanitary purposes is made by this law, also for the acquisition of property; the calling and conducting of elections, the assessment, levy, collection, custody and disbursement of taxes; the issuance and disposal of the bonds and the determination of their validity in making provisions for the payment of bonds, and the disposal of their proceeds.

This act is the same as the law of 1891, with the exception of section 21 which was amended so it requires that the board of supervisors shall maintain the sewer system installed in proper condition and shall fulfill *and compel fulfillment* of any and all contracts made by the sanitary district for the right of connections made with property lying outside of

the boundaries of said district; and shall maintain and protect all other rights acquired by the district, provided that all moneys received shall be placed in the Bond and Interest Fund or be used for making extensions within the boundaries of said sanitary district; and shall not permit connection to be made with the system installed by any property outside of the boundaries of said sanitary district existing at the time of dissolution, unless the owner of such property shall agree to pay annually from the time of connection made the property's pro rata of the tax levied to pay off any existing bonded indebtedness as though the property affected were within the boundaries of said sanitary district at the time of dissolution.

Chapter 138. Sanitary District Sewer Construction.

This act is for the purpose of including sanitary districts in the provisions of the old law authorizing municipal corporations to permit other municipal corporations to construct and maintain sewers, water mains, and other conduits, and to construct and maintain sewers, water mains, and other conduits for their joint benefit and at their joint expense, and to make and enter into contracts for said purposes.

Chapter 455. Sewer Districts.

Provision is made in this act for the division of municipalities into sewer districts, and for the construction of, or acquisition and maintenance of sewers. It also provides a system of district sewer bonds to pay the cost of construction or acquisition, and also for the payment of bonds.

Chapter 731. Garbage Disposal.

This act makes it unlawful to dump garbage or other refuse into navigable waters or in the Pacific ocean unless it is taken to a point over twenty miles from any point on the coast line of the state.

LEGISLATION PERTAINING TO DISEASE.

Chapter 250. Communicable Diseases.

The state board of health, according to this act, is required to examine into the causes of communicable diseases in man and domestic animals occurring or likely to occur in this state. This chapter amends Section 2979a of the Political Code and makes it the duty of each coroner, and of every county, city and county, city or town health officer, and every member of the local board of health, knowing, or having reason to believe that any case of cholera, plague, yellow fever, leprosy, diphtheria, scarlet fever, smallpox, typhus fever, typhoid fever, anthrax, glanders, epidemic cerebro-spinal meningitis, tuberculosis, pneumonia, dysentery, erysipelas, uncinariasis or hookworm, trachoma, dengue, tetanus, measles, German measles, chickenpox, whooping cough, mumps, pellagra, beriberi, syphilis, gonococcus infection, rabies, poliomyelitis, or any other contagious or infectious disease exists, or has recently existed, within the city, county, city and county, town, or township of which he is such officer, to take such measures as may be necessary to prevent the spread of such disease, and to report at once in writing such cases to the secretary of the state board of health at Sacramento.

It is also the duty of every attending or consulting physician, nurse,

or other person having charge of or caring for any person afflicted with any of said contagious diseases, to report at once in writing to the local board of health or local health officer the nature of the disease, the name of the person afflicted and the place of his or her confinement; *provided, however*, that syphilis and gonococcus infection shall be reported by office number only.

The state board of health, or its secretary, upon being informed of any such contagious or infectious disease, may thereupon take such measures as may be necessary to ascertain the nature of such disease and prevent the spread of such contagion, and to that end, said state board of health, or its secretary, may, if deemed proper, take possession or control of the body of any living person, or the corpse of any deceased person, and may direct and take such means as may be deemed expedient to arrest or prevent the further spread of such disease.

Chapter 339 (§ 13). Quarantinable Diseases.

This act is practically the same as the law of 1907, with the exception that the following diseases are made no longer quarantinable except by action of the local health officer: Membranous croup, measles, leprosy, and cases of anthrax and glanders affecting human beings.

Chapter 485. Occupational Diseases.

Under the provisions of this act every medical practitioner attending or called to visit a patient whom he believes to be suffering from any occupational disease is required to send the state board of health a notice giving full particulars of the case. In turn the state board of health transmits such data to the commissioner of the bureau of labor statistics. The sum of \$400 was appropriated for the purpose of paying a fee of fifty cents to each person reporting a case.

Chapter 692. Tuberculosis.

This act provides for the dissemination of knowledge among the people of California as to the best means of preventing the spread of tuberculosis, and for the investigation of its prevalence. The State Board of Health is empowered to investigate this disease in California, and publish or procure and distribute free to the people printed matter and offer educational material to show the danger of infection and the means of prevention and cure. Five thousand dollars was appropriated to carry out the provisions of this act.

Chapter 134. Vaccination and Smallpox.

This law provides for a general vaccination and for the transference of its enforcement from boards of school trustees to the health officers of the State. It extends to all schools, public and private. An alternative clause is provided, under which children of parents who object to vaccination may continue in school, in the absence of smallpox in the district. It provides for the withdrawal from school, of all unvaccinated children and persons, upon the filing with the teacher, or other school authorities, of a statement by the health officer that smallpox exists in the district, and, a presentation of an official list of those persons who are to be excluded; this withdrawal to be operative until smallpox no longer exists in the district.

ADMINISTRATION.

Chapters 659, 660. Assistant to the Secretary and Copists.

Chapter 659 provides for an assistant to the secretary of the California State Board of Health, and 660 provides for two copyists in the division of vital statistics. This additional technical and clerical assistance is vitally important to the efficient administration of the work now required of the board.

Chapter 154. Director and Assistant Director of the State Hygiene Laboratory.

This act authorizes the State Board of Health to appoint a director of the State Hygienic Laboratory and assistants for each branch laboratory established.

Chapter 122. Registration of Deaths.

The act for the registration of deaths remains practically the same as Chapter 119 of the statutes of 1905, with the exception of Chapter 15, which provides that the moneys collected for fees by the local registrar shall be by him paid into the city, county, or city and county treasury.

Chapter 332. School Fund Apportionment.

Under the previous law school funds were apportioned according to the number of children of school age residing in the school district. The present law bases the apportionment of moneys on the average actual school attendance. Indirectly this may be called a public health measure, in view of the fact that if certain communicable disease outbreaks should occur and the school attendance thus reduced, the school apportionment would be reduced accordingly, thus bringing sharply to the attention of the public the financial loss from disease.

SANITATION OF BUILDINGS.

Chapter 432. Tenement Houses.

This law is generally known as the "Burnett Tenement House Act" and is practically the same as the old law, with the exception of a few changes. The 1909 act called for 30 per cent of vacant space on inside lots and 10 per cent on corner lots, while the 1911 act calls for 25 per cent of vacant space on inside lots and 10 per cent on corners. The minimum height of rooms was increased from 8.6 feet to 9 feet between floor and ceiling.

The 1911 act also provides that every room in a tenement or apartment house must have a window of a prescribed size designated in the act. It is further stipulated that a tenement or apartment house may not be built until the local department of building has issued a permit after approving plans and specifications, and such building may not be occupied until the local health department issues a permit stating that the law regarding sanitation features has been complied with.

Chapter 375. Bathing Resorts.

This law was enacted for the purpose of regulating the keeping of bathing places and swimming resorts on rivers and streams and makes it compulsory for keepers of public bathing resorts to provide for the safety of bathers.

PURE FOOD AND DRUGS.

The pure food and drug legislation for 1911 has been published in a *separate pamphlet*.

DEPARTMENT REPORTS.

REPORT OF BUREAU OF VITAL STATISTICS FOR AUGUST.

GEORGE D. LESLIE, Statistician.

State Totals and Annual Rates.—The following table shows for California as a whole the birth, death, and marriage totals for the current and preceding months in comparison with those for the corresponding months of last year, as well as the annual rates per 1,000 population represented by the totals for the current and preceding months. The rates are based on an estimated midyear population of 2,488,256 for California in 1911, the estimate having been made by the Census Bureau method with slight modifications.

Birth, Death and Marriage Totals, with Annual Rates per 1,000 Population for Current and Preceding Months, for California: August.

MONTH.	MONTHLY TOTAL.		Annual Rate per 1,000 Population. 1911.
	1911.	1910.	
August —			
Births	3,129	2,773	14.8
Deaths	2,577	2,549	12.2
Marriages	2,303	2,114	10.9
July —			
Births	3,003	2,698	14.2
Deaths	2,591	2,576	12.3
Marriages	2,365	2,072	11.2

The birth and marriage totals for August, as for July, were much greater in 1911 than in 1910, while in both months the death totals were not far from the same each year.

County Totals.—The first table on the following page shows the monthly birth, death, and marriage totals for the principal counties of the State, the list being limited to counties having a population of at least 25,000 according to the Federal Census of 1910. Totals are also shown for San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), as well as for Los Angeles and Orange counties together.

City Totals.—The second table on the following page gives the birth and death totals for the principal freeholders' charter cities, the list including all chartered cities with a census population of at least 15,000 in 1910. Totals are given likewise for San Francisco in comparison with Oakland, Alameda, and Berkeley, the three cities adjoining one another on the east shore of San Francisco Bay, as well as for Los Angeles in comparison with neighboring chartered cities (Long Beach, Pasadena, Pomona, and Santa Monica).

Birth, Death and Marriage Totals, for Principal Counties: August.

County.	AUGUST, 1911.		
	Births.	Deaths.	Marriages.
California	3,129	2,577	2,303
Counties of more than 25,000 population (1910):			
Alameda	335	248	226
Butte	22	21	15
Contra Costa	45	82	16
Fresno	115	76	48
Humboldt	47	25	28
Kern	38	26	30
Los Angeles	786	627	524
Marin	20	13	93
Orange	35	45	87
Riverside	74	39	26
Sacramento	115	105	89
San Bernardino	63	60	46
San Diego	105	99	90
San Francisco	596	469	484
San Joaquin	37	57	50
San Mateo	34	20	27
Santa Barbara	55	26	19
Santa Clara	95	103	78
Santa Cruz	36	29	22
Solano	38	16	11
Sonoma	47	56	44
Tulare	25	23	17
Selected groups:			
San Francisco and other bay counties	1,090	782	846
Los Angeles and Orange counties	821	672	611

Birth and Death Totals, for Principal Cities: August.

City.	AUGUST, 1911.	
	Births	Deaths.
Freeholders' charter cities	2,017	1,548
Cities of more than 15,000 population (1910):		
Alameda	19	13
Berkeley	43	42
Fresno	55	26
Long Beach	33	28
Los Angeles	530	413
Oakland	233	133
Pasadena	50	32
Riverside	35	23
Sacramento	70	66
San Diego	78	87
San Francisco	596	469
San Jose	45	38
Stockton	16	25
Selected groups:		
San Francisco	596	469
Oakland, Alameda and Berkeley	295	188
Total, Bay cities	891	657
Los Angeles	530	413
Neighboring cities	98	81
Total	628	494

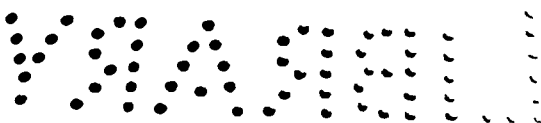
Causes of Death.—The following table shows the classification of deaths in California for the current month, in comparison with the preceding month :

Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths for Current and Preceding Month, for California: August.

Cause of Death.	Deaths: August.	Proportion per 1,000.	
		August.	July.
All causes	2,577	1,000.0	1,000.0
Typhoid fever	33	12.8	18.1
Malarial fever	20	7.8	4.6
Measles	5	1.9	4.3
Scarlet fever	1	0.4	1.5
Whooping-cough	15	5.8	9.7
Diphtheria and croup	6	2.3	1.2
Influenza	1	0.4	1.2
Other epidemic diseases	14	5.4	6.6
Tuberculosis of lungs	328	127.8	123.5
Tuberculosis of other organs	43	16.7	29.0
Cancer	157	60.9	63.3
Other general diseases	155	60.1	39.0
Meningitis	26	10.1	13.1
Other diseases of nervous system	177	68.7	76.8
Diseases of circulatory system	407	157.9	153.2
Pneumonia and broncho-pneumonia	106	41.1	47.5
Other diseases of respiratory system	46	17.9	15.4
Diarrhea and enteritis, under 2 years	133	51.6	48.2
Diarrhea and enteritis, 2 years and over	37	14.4	14.3
Other diseases of digestive system	145	56.3	50.6
Bright's disease and nephritis	191	74.1	62.5
Childbirth	35	13.6	10.4
Diseases of early infancy	79	30.7	45.5
Suicide	68	26.4	18.5
Other violence	236	91.6	99.2
All other causes	113	43.8	42.8

In August there were 407 deaths, or 15.8 per cent of all, from diseases of the circulatory system, and 371, or 14.4 per cent, from various forms of tuberculosis. Heart disease thus led tuberculosis considerably.

Other notable causes of death were: Diseases of digestive system, 315; violence, 304; diseases of nervous system, 203; Bright's disease and nephritis, 191; cancer, 157; diseases of respiratory system, 152; and epidemic diseases, 95.



The deaths from epidemic diseases were as follows: Typhoid fever, 33; malarial fever, 20; diphtheria and croup, 6; measles, 5; whooping-cough, 15; and all other epidemic diseases, 16.

The deaths from the four leading epidemic diseases reported for the month were distributed by counties as follows:

TYPHOID FEVER.		MALARIAL FEVER.		WHOOPIING-COUGH.	
Alameda	7	Amador	2	Contra Costa	1
Butte	1	Butte	1	Kings	2
Fresno	1	Calaveras	1	Los Angeles	5
Kern	1	El Dorado	1	Riverside	1
Kings	1	Fresno	1	Sacramento	1
Lassen	1	Imperial	1	San Francisco	2
Los Angeles	5	Merced	1	Santa Clara	2
Nevada	1	Placer	2	Trinity	1
Orange	1	Sacramento	1	Total	15
Riverside	1	San Francisco	2		
Sacramento	3	San Joaquin	1	DIPHTHERIA AND CROUP.	
San Bernardino	1	Santa Clara	1	Los Angeles	3
San Francisco	1	Shasta	1	San Diego	1
Santa Barbara	1	Tulare	1	San Francisco	1
Shasta	1	Yuba	3	San Joaquin	1
Sonoma	1	Total	20	Total	6
Tulare	2				
Tuolumne	3				
Total	33				

Geographic Divisions.—The following table presents data for geographic divisions, including the metropolitan area, or San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), in comparison with the rural counties of Northern and Central California:

Deaths from Main Classes of Diseases, for Geographic Divisions August.

Geographic Division.	DEATHS: AUGUST										
	All Causes	Epidemic Diseases	Tuberculosis (All Forms)	Cancer	Diseases of Nervous System	Diseases of Circulatory System	Diseases of Respiratory System	Diseases of Digestive System	Bright's Disease and Nephritis	Violence	All Other Causes
THE STATE	2,577	95	371	157	208	407	16	315	191	304	382
Northern California	310	17	34	13	31	40	16	36	19	53	61
Coast counties	155	3	22	4	17	24	10	16	12	19	28
Interior counties	155	14	12	9	14	16	6	20	7	34	23
Central California	1,338	52	156	91	96	237	87	168	105	144	200
San Francisco	469	12	51	46	24	85	37	54	44	34	82
Other bay counties	313	9	35	21	28	64	27	40	23	30	36
Coast counties	162	4	20	11	16	34	11	22	12	14	18
Interior counties	392	27	50	13	28	54	12	52	26	66	64
Southern California	931	26	181	53	76	130	49	111	67	107	131
Los Angeles	627	17	122	42	48	97	35	65	48	61	92
Other counties	304	9	59	11	28	33	14	46	19	46	39
Northern and Central California Metropolitan area	1,646	60	190	104	127	277	108	204	124	197	251
Rural counties	782	21	86	37	52	140	64	94	67	64	118
	864	48	104	37	75	128	39	110	57	133	133

Morbidity Report for August, 1911.

Disease.	Causes.	Places.
All causes.....		
Typhoid fever.....	106	21
Malarial fever.....	50	7
Smallpox.....	19	11
Measles.....	87	6
Scarlet fever.....	54	8
Whooping-cough.....	64	28
Diphtheria and croup.....	8	2
Influenza.....	1	1
Plague.....	192	16
Tuberculosis of lungs.....	2	1
Glanders.....	1	1
Anthrax.....	6	2
Rabies.....	1	1
Pellagra.....	5	4
Syphilis.....	20	6
Gonorrhoea.....	1	1
Trachoma.....	1	1
Uricinariasis.....		
Diarrhea and enteritis, under 2 years.....		
Diarrhea and enteritis, 2 years and over.....		
Other diseases of digestive system.....		
Bright's disease and nephritis.....		
Childbirth.....		
Diseases of early infancy.....		
Suicide.....		
Other violence.....		
All other causes.....		

REPORT OF THE PURE FOOD AND DRUG LABORATORY.

PROFESSOR M. E. JAFFA, Director.

The work of the State Food and Drug Laboratory for the past month has included analysis of meats, which were tested for the presence of preservatives, and in some cases examination was made to determine the presence of beef in pork sausage; several samples of candy and nuts coated with candy have been examined for shellac, and in some cases shellac was detected in the coatings. The use of this material in the coatings of confectionery is prohibited by Food Inspection Decision No. 119, United States Department of Agriculture, which decision is incorporated in the California State food law; other samples examined include table syrups, spices, condiments, vinegar, extracts, and drugs.

PURE FOOD AND DRUG CASES REFERRED TO DISTRICT ATTORNEYS, AUGUST 5, 1911.

Name of article.	Offense.	Manufacturer or jobber.	Accused dealer.
Gluten Sticks	Adulterated. Deficient in nitrogen	Sanitarium Food Co., St. Helena.	Vegetarian Cafeteria, Los Angeles.
Gluten Bread	Adulterated. Deficient in nitrogen	Meek-Barnes Bakery	Fosgate & Reese, Los Angeles.
Gluten Bread	Adulterated. Deficient in nitrogen		Frank Martin, Los Angeles.
Gluten Flour	Adulterated. Deficient in nitrogen		Frank Martin Bakery, Los Angeles.
Sauce	Mislabeled. Contains benzoates not declared on label		Ambrosia Restaurant Co., San Francisco.
Prepared Mustard	Mislabeled. Contains turmeric not declared on label		Ernst Ploeger, San Francisco.
Peppermint	Mislabeled. Contains non-permissible coal-tar color	Bertin & Lepori	Bertin & Lepori, San Francisco.
Ground Cloves	Adulterated. Contains foreign starch		L. Bosse, San Francisco.
Coffee	Adulterated. Contains chicory not declared on label		S. Rezopulos, O. K. Coffee Parlor, San Francisco.
Coffee	Adulterated. Contains chicory not declared on label		Radulovich & Co., Globe Restaurant, San Francisco.
Coffee	Adulterated. Contains chicory not declared on label		Gus Marulakes, proprietor, Popular Grill, S. F.
Coffee	Adulterated. Contains chicory not declared on label		J. Kefalas, Valencia Oyster House, San Francisco.
Ice Cream	Mislabeled. Below standard in fat. Contains 9.4%		G. Crawford, San Jose.
Pure Lard	Adulterated. Contains approximately 40% foreign fat	L. C. Tubbs	L. C. Tubbs, San Pedro.
Chamberlain's Colic Cure	Mislabeled. Contains ethyl alcohol, ether, morphine, chloroform, and meconic acid not declared on label.	Chamberlain Medicine Co., Des Moines, Ia.	T. F. Phillips, Grass Valley.
Dr. Gibson's Headache Powders.	Mislabeled. Contains acetanilid not declared on label.	Gibson, Howell & Co., Philadelphia.	T. F. Phillips, Grass Valley.
Lane's Headache Powders.	Mislabeled. Contains acetanilid not declared on label.	Lane's Pharmacy Laboratory, Boston.	Eagle Drug Store, Stockton.
Chamberlain's Colic and Diarrhea Remedy.	Mislabeled. Contains alcohol, morphine, meconic acid, and chloroform not declared on label.	Chamberlain Medicine Co., Des Moines, Ia.	Corner Drug Store, Woodland.
Ballard's Horehound Syrup.	Mislabeled. Contains alcohol, chloroform, and morphine not declared on label.	James F. Ballard, St. Louis, Mo.	E. C. Whiting, Oroville.
Laxacold	Mislabeled. Contains acetanilid not declared on label.	New York and London Drug Co., New York.	F. S. Stevens, Auburn.
Gale's Honey of Horehound and Tar.	Mislabeled. Contains ethyl alcohol and morphine not declared on label.	C. N. Crittenden Co., New York.	Bartlett Drug Co., Chico.
paregoric	Mislabeled. Contains alcohol, morphine, and meconic acid not declared on label.		Mitchell Drug Co., Willows.

NOTE.—Due to lack of space this list of cases was not published in the August number.

Name of article.	Offense.	Manufacturer or jobber.	Accused dealer.
Chopped Meat	Adulterated. Contains sulphur dioxide	Antone Pfandler	Antone Pfandler, San Francisco.
Hall's Balsam for the Lungs.	Mislabeled. Contains ethyl alcohol not declared on label.	Wm. Hall Co., proprietor, New York.	J. G. McLaughlin, Auburn.
Paradise Oil	Mislabeled. Contains alcohol and opium not declared on label.	Paradise Medicine Co., Fresno	(Dealer protected by guaranty from manufacturer.)
Prima Tonic	Mislabeled. Contains alcohol not declared on label.	Independent Brewing Association, Chicago.	Olson's, incorporated, Oakland.
Essence Jamaica Ginger	Mislabeled. Contains alcohol not declared on label.	Merten & Co., San Francisco.	(Dealer protected by guaranty from manufacturer.)

PURE FOOD AND DRUG CASES REFERRED TO DISTRICT ATTORNEYS, SEPTEMBER 2, 1911.

Kalmosol. Headache Cure.	Mislabeled. Contains acetanilid not declared on label. False and misleading statements.	Kalmosol Manufacturing Co., Los Angeles.	Gutierrez Drug Store, Santa Barbara.
Pure Apple Cider	Adulterated. Other materials substituted for apple cider.		Geo. H. Warn, Burbank.
Sweet Relish	Mislabeled. Contains benzoates not declared on label.	Pacific Vinegar & Pickle Wks., San Francisco.	(Dealer protected by specific guaranty.)
Headache Powders	Mislabeled. Contains acetanilid not declared on label. Principal label not in English.		R. Ogawa, Los Angeles.
Headache Remedy	Mislabeled. Contains acetanilid not declared on label. Principal label not in English.		S. Yamashita, Los Angeles.
Headache Powders	Mislabeled. Contains acetanilid not declared on label. Principal label not in English.		K. Nakano, Los Angeles.
Tincture Iodine	Mislabeled. Contains alcohol not declared on label. Principal label not in English.		Y. Kamada, Los Angeles.
Headache Powders Blue Cross.	Mislabeled. Contains acetanilid not declared on label.	W. H. Hooker & Co., New York.	Starr Drug Co., Santa Barbara.
Excelsior Extract Lemon	Mislabeled. Contains no lemon oil. Contains 1.35 oz., and label states 2 ozs.	Excelsior Company, New York.	Joaquin B. Hillier, El Rio.
Pork Sausage	Adulterated. Contains sulphur dioxide	Lesser Bros. Co., Oakland	Lesser Bros. Co., Oakland.
Chopped Meat	Adulterated. Contains sulphur dioxide	Lesser Bros. Co., Oakland	Lesser Bros. Co., Oakland.
Chopped Meat	Adulterated. Contains sulphur dioxide	F. Becker Meat Co., Oakland	F. Becker Meat Co., Oakland.
Pork Sausage	Mislabeled. Contains corn cereal	E. Bendel, San Francisco	E. Bendel, San Francisco.
Extract Lemon	Mislabeled and adulterated. Contains coal tar, color not declared on label, and contains only trace of lemon oil.	Geo. H. Taylor, San Francisco	Lehman Bros., Pinole.

Coffee	Adulterated.	Contains chicory not declared	Meads, Inc., San Francisco.
Coffee	Adulterated.	Contains chicory	J. N. Drobse, Berkeley Cafe & Restaurant, San Francisco.
Brown's Ginger	Mislabeled.	Contains alcohol not declared on the label.	Gerard-McCormick Drug Co., San Francisco.
Essence Jamaica Ginger	Mislabeled.	Contains alcohol not declared on the label.	No Percentage Drug Co., San Francisco.
Kilmer's Autumn Leaf Extract	Mislabeled.	Contains alcohol not declared on the label.	George A. Root, San Francisco.
Extract Witch Hazel	Mislabeled.	Contains alcohol not declared on the label.	Palace Drug Co., Antioch.
Wine Vinegar	Adulterated.	Below standard in acetic acid	Eagle Fruit Market, San Francisco.
Lemon Extract	Mislabeled and adulterated.	Contains artificial color not declared and is deficient in lemon oil.	Pearson & Co., Mountain View
Sanford's Radical Cure	Mislabeled.	Contains alcohol not declared on the label.	Johnston's Pharmacy, San Jose.
Essence Jamaica Ginger	Mislabeled.	Contains alcohol not declared on the label.	(Dealer protected by specific guaranty.)
Phospho	Mislabeled.	Contains false and misleading statements	(Dealer protected by specific guaranty.)
Chopped Meat	Adulterated.	Contains sulphur dioxide	Central Market, Roseville.
Tomato Catsup	Mislabeled.	Contains benzoates and coal tar color not declared on the label.	Henry Lobner, Colfax.
Hamburg Steak	Adulterated.	Contains sulphur dioxide	Washington Market, Lodi.
Chopped Meat	Adulterated.	Contains sulphur dioxide	Wm. Schumacher, Anaheim.
Pork Sausage	Mislabeled.	Contains starch not declared on the label	Wm. Schumacher, Anaheim.
Chopped Meat	Adulterated.	Contains sulphur dioxide	Bergman & Obarr, Santa Ana.
Pork Sausage	Adulterated.	Contains sulphur dioxide	Bergman & Obarr, Santa Ana.
Chopped Meat	Adulterated.	Contains sulphur dioxide	Wm. C. Ast, San Francisco.
Headache Salts	Mislabeled.	Contains acetanilid not declared on the label.	C. F. Bertholf, Stockton.
Electric Bitters	Mislabeled.	Contains alcohol not declared on the label.	Reliable Drug Co., San Francisco.
Parker's Ginger Tonic	Mislabeled.	Contains alcohol not declared on the label.	Reliable Drug Co., San Francisco.
Witch Hazel	Mislabeled.	Contains alcohol not declared on the label.	Pacific Drug Co., San Francisco.
Gum Asafetida	Adulterated with foreign materials.	Percentage of ash high.	(Dealer protected by specific guaranty.)

NOTICES OF JUDGMENTS.

The following Notices of Judgment have been received at the Laboratory since the publication of the last monthly bulletin; full copies of these may be obtained by addressing the Director of the State Food and Drug Laboratory, Berkeley, Cal.

Number of case and offense charged.	Name and address of defendant or manufacturer.	Specification of offense and disposition of case.
922. Adulteration of tomato catsup.	A. C. Soper & Co., New York City.	Product consisted in part of a filthy, decomposed, and putrid animal or vegetable substance. Ordered destroyed.
923. Adulteration of meal product—"Maisfutter."	Baltimore Pearl Hominy Co., Baltimore, Md.	Product consisted of a filthy, decomposed vegetable matter. Released under bond after paying cost.
924. Misbranding of Harris' Lithia Water.	Thos. H. Atkinson, Washington, D. C. (consignee).	False and misleading statements. Released under bond after paying cost.
925. Adulteration of tomato catsup.	McMechen Preserving Co., Wheeling, W. Va.	Product consisted in whole or in part of filthy, decomposed, and putrid vegetable substance. Ordered destroyed.
926. Adulteration and misbranding of blackberry cordial.	Consumers' Supply Co., St. Joseph, Mo.	Product contained glucose, saccharine, benzoic acid and an artificial coloring matter. Fine \$100 in each of two cases; costs of prosecution to be shared equally by said defendants.
927. Misbranding and alleged adulteration of vinegar.	Oakland Vinegar and Pickle Co., Saginaw, Mich.	Product consisted of dilute acetic acid or distilled vinegar and foreign material high in reducing sugars. Released under bond after paying costs.
928. Adulteration and misbranding of maple syrup.	C. D. Cannon Maple Co., Chicago, Ill.	Product consisted of more than 50 per cent cane syrup. Condemned and forfeited to U. S.
929. Adulteration and misbranding of spirits turpentine.	A. G. Belden & Co., New York City.	Mineral oil had been substituted in part for spirits turpentine. Released under bond after paying costs.
930. Misbranding of a drug product—"Dr. Elders' Celebrated Tobacco Specific"	H. W. Elders, St. Joseph, Mo.	Label false and misleading. Product contained cocaine and the derivatives of cocaine. Fine \$100 and costs.
931. Misbranding of a drug product—"Chandler's Headache Buttons."	Chandler Medicine Co., St. Louis, Mo.	False and misleading statements. Fine \$10 and costs.
932. Adulteration and misbranding of vanilla flavor.	Louis Goetzman and Frederick Goetzman, St. Louis, Mo.	Product consisted of highly dilute alcoholic solution of vanilla and coumarin. Fine \$20 and costs.
933. Misbranding of a drug product—"Sabine's Blackberry Soothing Drops."	A. J. Lemke Medicine Co., Milwaukee, Wis.	False and misleading statements. Fine \$10.
934. Misbranding of evaporated apples.	Wallerstein Produce Co., Richmond, Va.	Product consisted of common grade sun dried apples. Released under bond after paying costs.

NOTICES OF JUDGMENTS—Continued.

Number of case and offense charged.	Name and address of defendant or manufacturer.	Specification of offense and disposition of case.
935. Adulteration and misbranding of "Vani-Kola Compound Syrup."	The Vani-Kola Compound Co., Canton, Ohio.	Product contained added deleterious ingredients, to wit: caffein, and cocaine. Fine \$25, and costs.
1094. Adulteration and misbranding of Hammond Dairy Feed.	Western Grain Products Co., Indiana.	Misbranded. Label states product contains 17 per cent. protein and 9 per cent. crude fiber, whereas it contained only 13.41 per cent. protein and 13.16 per cent. crude fiber. Adulterated. Weed seeds had been mixed and packed with product so as to injuriously affect its quality. Fine, \$200 and costs.
1095. Adulteration and misbranding of tomato catsup.	Leroux Cider & Vinegar Co., Ohio.	Adulterated, because product contained filthy, decomposed or putrid vegetable substance. Misbranded. Label contained false and misleading statements. Fine, \$50 and costs.
1096. Adulteration and misbranding of flavoring extract.	Edward Weston Tea & Spice Co., St. Louis, Mo.	Product was mixed with and colored by caramel to conceal inferiority. False and misleading statements. Fine, \$50 and costs.
1097. Adulteration and misbranding of blackberry jam.	National Pickle & Canning Co., St. Louis, Mo.	Product contained filthy, decomposed and putrid animal and vegetable substances. Fine, \$20 and costs.
1098. Adulteration and misbranding of catsup.	National Pickle & Canning Co., St. Louis, Mo.	Product consisted in large part of filthy, decomposed and putrid animal or vegetable substance. Statements false and misleading. Fine, \$30 and costs.
1099. Misbranding of flavoring extract.	St. Louis Coffee & Spice Mills, St. Louis, Mo.	Use of the word Vanilla false and misleading. Fine, \$5 and costs.
1100. Adulteration of crystal egg.	St. Louis Crystals Egg Co., St. Louis, Mo.	Adulterated. Dirt and egg shells had been mixed and packed with product so as to injuriously affect its quality. Fine, \$10 and costs.
1101. Adulteration and misbranding of Northern Ohio sugar and maple sugar.	Purser, Powers & Co., Bay City, Mich.	Adulterated, because cane sugar had been substituted wholly or in part for said product. False and misleading statements. Product condemned and forfeited to U. S.
1102. Adulteration of crystal eggs.	St. Louis Crystal Eggs Co., St. Louis, Mo.	Product had been mixed with a poisonous and deleterious ingredient, boric acid, which rendered article injurious to health. Fine, \$5 and costs.
1103. Adulteration of egg color.	Wood & Selick. New York, N. Y.	Product contained a poisonous or deleterious ingredient, to wit: arsenic. Fine, \$25 each on two counts.
1104. Adulteration and misbranding of compound vanilla flavor.	N. Terzis, St. Louis, Mo.	A substance consisting of vanillin, coumarin and dilute alcohol had been mixed with the product so as to reduce, lower and injuriously affect its quality and strength. Ordered destroyed.

NOTICES OF JUDGMENTS—Continued.

Number of case and offense charged.	Name and address of defendant or manufacturer.	Specification of offense and disposition of case.
1105. Adulteration of improved sodic aluminic sulphate.	Hygienic Chemical Co., St. Louis, Mo.	Product contained an added poisonous ingredient, to wit: arsenic. Released under \$500 bond after paying costs.
1106. Adulteration and alleged misbranding of tomato puree.	G. M. Ahrons & Co., New Orleans, La.	Product consisted in whole or in part of filthy and decomposed vegetable substance. False and misleading statements. Ordered destroyed.
1107. Adulteration of tomato pulp.	W. A. Gordon & Co., New Orleans, La.	Product consisted in whole or in part of a filthy, decomposed vegetable substance. Ordered destroyed.
1108. Adulteration of egg product.	Storage Warehouse, Constitution Wharf, 409 Commercial St., Boston, Mass.	Product consisted in whole or in part of a filthy, decomposed, or putrid animal or vegetable substance. Ordered destroyed.
1109. Misbranding of cottonseed meal.	J. Lindsay Wells Co., Tennessee.	False and misleading statements on label. Fine, \$25 and costs.
1110. Adulteration and misbranding of vinegar.	Queen City Cider Vinegar Mfg. Co., Cincinnati, Ohio.	Water had been mixed with the vinegar so as to reduce and lower or injuriously affect its quality and strength. Fine, \$50 and costs.
1111. Misbranding of whiskey.	J. A. McCormock, Memphis, Tenn.	False and misleading statements. Fine, \$25 and costs.
1112. Alleged misbranding of coffee.	W. F. McLaughlin & Co., Illinois.	Statements false and misleading. Court entered finding of not guilty.
1113. Misbranding of "Sweet's honey vermifuge."	Van Vleet-Mansfield Drug Co., Tenn.	Statements false and misleading. Fine, \$10 and costs.
1114. Misbranding of Evaporated milk.	M. & O. Milk Co., Missouri.	Each can was found to be short in weight. Released under \$500 bond, after paying costs, on condition that product would not be disposed of otherwise in violation of law.
1115. Alleged adulteration and misbranding of oleomargarine.	Jesse A. Steele (Wisconsin Creamery Co.).	Product was sold under distinctive name, to wit: Wisconsin Creamery butter, when in fact it was an imitation thereof. Defendant discharged—not guilty.
1116. Adulteration of frozen egg.	Bennett Howard Co., Illinois.	Product consisted of a filthy, decomposed, or putrid animal substance. Fine, \$100 and costs.
1117. Misbranding of condensed milk.	Libby, McNeill & Libby, Illinois.	False and misleading statements. Short weight. Fine, \$50.
1118. Alleged adulteration and misbranding of vanilla extract; adulteration of pepper.	Eddy & Eddy Mfg. Co., St. Louis, Mo.	A substance had been mixed with product so as to injuriously affect its quality and strength. False and misleading statements. A large amount of shells, dirt, sand, etc., had been mixed with product. Fine, \$50 and costs.

NOTICES OF JUDGMENTS—Continued.

Number of case and offense charged.	Name and address of defendant or manufacturer.	Specification of offense and disposition of case.
1119. Adulteration and misbranding of cider vinegar.	W. J. Wilson & Son, Washington.	Product made by the fermentation and acidification of glucose had been mixed with said vinegar so as to reduce, lower and injuriously affect its quality and strength. Fine, \$25 and costs.
1120. Adulteration and misbranding of cider vinegar.	W. J. Wilson & Son, Washington.	Vinegar made from glucose had been mixed with product so as to reduce or lower or injuriously affect its quality and had been substituted wholly or in part for cider vinegar. Fine, \$25 and costs.
1121. Misbranding of cane and maple sugar butter.	Marshalltown Syrup & Sugar Co., Iowa.	Presence of benzoate of soda not declared on the label. Fine, \$20.
1122. Misbranding of cane and maple sugar butter.	Marshalltown Syrup & Sugar Co., Iowa.	Label false and misleading. Shortage in weight. Fine, \$20.

REPORT OF THE STATE HYGIENIC LABORATORY FOR AUGUST.

WILBUR A. SAWYER, M.D., Director.

BUBONIC PLAGUE.

On August 18, 1911, the Director of the Laboratory was notified of a human case of plague in Alameda County. The patient was a young man who was said to have received his infection while hunting ground squirrels in Contra Costa County. The Director, as the representative of the State Board of Health, visited the case the following day and withdrew a small amount of fluid from the broken-down lymph-nodes for examination at the laboratory. Microscopic examination of some of the material showed the typical oval bacilli of bubonic plague. A small amount was inoculated into a guinea-pig and produced changes in the internal organs which were characteristic of the disease. The spleen of the guinea-pig contained large numbers of plague bacilli, and some of the spleen substance was placed on each of several different nourishing media. The bacterial growth in each instance was characteristic of the plague bacillus (*Bacillus pestis*). The results of this examination indicated beyond question that the case was one of bubonic plague. An independent investigation by the United States Public Health and Marine-Hospital Service led to the same conclusion.

ANTHRAX.

The ears of cattle which have died with symptoms suggesting anthrax are frequently received in the laboratory. In the majority of these cases the bacilli of anthrax are discoverable in the blood, and are identified by their characteristic growth on culture media.

The attention of cattle owners and veterinarians is called to the fact that tissues from animals dead of anthrax can not be legally sent through

the mails in ordinary containers. When sending material for examination for anthrax they should remove the animal's ear and wrap it carefully in paper and cotton. The specimen should be enclosed in some suitable box and sent immediately by prepaid express to the State Hygienic Laboratory in Berkeley.

DEPOSITORIES FOR MAILING OUTFITS.

The drug stores listed below have generously agreed to store and distribute the mailing outfits of this laboratory. It is hoped that a list of drug stores representing all the counties of the state will be ready for the next issue of the Bulletin. The official depositories issue to physicians and health officers free mailing outfits for the transmission of specimens to this laboratory. Special outfits are kept in stock for sending material to be examined for diphtheria, tuberculosis, typhoid, malaria, and gonococcus infections.

County.	Town.	Druggist.	Address.
Butte	Chico	Ben Hasting's Pharmacy	Main and Third sts.
Colusa	Arbuckle	Chas. G. Stinson	
	Colusa	Oscar Robinson	Market st.
	Maxwell	Arthur J. Fouch	
	Williams	J. F. Fouch	Seventh and E sts.
Del Norte	Crescent City	Bowman's Drug Store	Second and H sts.
Humboldt	Fortuna	Bowman's Drug Store	
Lassen	Susanville	J. B. Spaulding	Main st.
Shasta	Redding	Powell Pharmacy Co.	427 Market st.
Sierra	Loyalton	Loyalton Drug Co.	
Siskiyou	Dunsmuir	Red Cross Drug Store	
	Etna Mills	W. J. Balfrey	
	Sisson	Mt. Shasta Pharmacy	Walnut st.
	Yreka	Avery Drug Co.	
Tehama	Red Bluff	Elmore's Pharmacy	401 Walnut st.

CENTRAL CALIFORNIA BRANCH LABORATORY.

The State Board of Health has established a branch of the State Hygienic Laboratory at 32 Peterson Block, Fresno, under the directorship of Dr. W. W. Cross. At this laboratory diphtheria cultures, tuberculosis sputum, and typhoid blood will be examined. The Central California Branch Laboratory serves the following counties: Kern, Kings, Tulare, Fresno, Madera, Merced, Mariposa. Persons from these counties who have been bitten by rabid dogs, and who are not financially able to pay a physician to administer the Pasteur treatment with the commercial virus, may receive the Pasteur treatment at the laboratory without charge. Such persons should bring a written statement from their local health officers stating their financial disability.

RABIES.

Rabies continues to be active in Fresno and Kings counties. Heads of dogs sent to the laboratory from these counties frequently show the presence of Negri bodies, indicating the presence of the disease.

Persons bitten by dogs suspected of having rabies should not delay to have their wounds cauterized by near-by physicians, preferably with nitric acid. This procedure does not remove the necessity for Pasteur treatment. It does diminish the chance that the disease will develop, and also lengthens the incubation period, thus giving the Pasteur treatment longer time in which to produce immunity.

Summary of Examinations made in the California State Hygienic Laboratory during the month of August, 1911.

Main Laboratory at Berkeley:

Condition suspected:

	Positive.	Negative.	Unsat- isfactory.	Total.
Anthrax	1	--	--	1
Diphtheria	12	24	--	36
Gonorrhea	--	2	--	2
Hookworm	--	2	--	2
Malaria	1	3	--	4
Plague	1	--	--	1
Rabies	3	3	2	8
Tuberculosis	4	11	--	15
Typhoid	7	23	--	30
Water pollution	3	14	--	17
Miscellaneous	--	1	--	1

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Los Angeles Branch Laboratory:

Conditions suspected:

Diphtheria	--	2	--	2
Typhoid	--	1	--	1

3

Total number examinations 120

DIVISIONS OF THE STATE HYGIENIC LABORATORY.

State Hygienic Laboratory,

University of California, Berkeley, California.

Central California Branch of the State Hygienic Laboratory,

32 Patterson Building, Fresno, California.

Southern Branch of the State Hygienic Laboratory,

379 Wilcox Building, Los Angeles, California.

ANNOUNCEMENT CONCERNING LABORATORY EXAMINATIONS.

The State Hygienic Laboratory makes routine and special examinations which have a public health bearing. The kinds of examinations and the conditions under which they are made are here outlined.

All specimens examined must come from persons or animals within the State of California. The services of the laboratory are available only in connection with cases outside of those municipalities which have laboratories for the performance of the kinds of examinations needed. No charge is made for examinations by the State Hygienic Laboratory.

Specimens must be taken and forwarded by health officers, physicians, or (where animals are concerned) by veterinarians.

Specimens should not be sent through the mails except in the regular mailing outfits furnished by the State Hygienic Laboratory. The United States postal laws and regulations strictly prescribe the kinds of containers which may be used in mailing bacteriological specimens. Infraction of these laws result in seizure of the packages and investigation by the postal authorities. Mailing outfits may be obtained from the State Hygienic Laboratory in Berkeley or from any of the drug stores which have been appointed official depositories for the outfits of the laboratory.

Reports of the results are sent to the senders of the specimens, and, when positive evidence of communicable disease is obtained, to the local health officers. On request the results are transmitted, charges collected, by telephone or telegraph.

DEPOSITORIES FOR MAILING OUTFITS.

The State Hygienic Laboratory is establishing in drug stores of the larger towns of California, stations for the distribution of its mailing outfits to health officers, physicians, and veterinarians. These outfits are for use only in sending specimens to the State Hygienic Laboratory or one of its branches. Mailing outfits may be obtained for forwarding sputum from suspected cases of tuberculosis, cultures and swabs from suspected cases of diphtheria, dried blood from suspected cases of typhoid fever, smears of blood from suspected cases of malaria, smears of pus from suspected cases of gonococcus infection, and feces from suspected cases of hookworm disease.

A list of drug stores serving as depositories will be published from time to time in the Monthly Bulletin of the State Board of Health.

TUBERCULOSIS.

Sputum from individuals suspected of having tuberculosis will be examined for the presence of tubercle bacilli. Examinations of milk, tissues, pus, exudates, feces, and urine for evidences of tuberculosis are not made by the laboratory except in connection with special investigations ordered by the Board. Sputum should not be sent except in the regular containers furnished by the laboratory, and the blanks sent with the mailing outfits must be filled out and forwarded with the specimen.

DIPHTHERIA.

The mailing outfit for examination with regard to diphtheria contains a sterile swab, a tube of culture medium, directions, and a data card. The swab as well as the culture should always be returned to the laboratory for examination.

Old, dry, or contaminated culture tubes should be exchanged for fresh ones. The depositories are expected to keep fresh tubes on hand and thus to help do away with the use of old or dry culture medium. In all urgent cases physicians should request that the result be telephoned or telegraphed.

TYPHOID.

Outfits and directions are furnished for the sending of dried drops of blood for examination for the Widal reaction of typhoid fever. Several drops should be obtained and allowed to dry on the aluminum foil of the outfit.

MALARIA.

Mailing outfits containing two glass slides, directions, and data card are furnished for transmitting smears of blood for examination for the organism of malaria. Frequently the blood cannot be examined owing to carelessness in preparing the blood-film. Directions should be closely followed. Quinine should be withheld until the specimen has been secured.

GONOCOCCUS INFECTIONS.

Outfits similar to those furnished for examinations for malaria are sent with directions for obtaining specimens from cases of suspected *gonococcus infection*.

HOOKWORM.

Feces from cases of suspected hookworm may be sent in the containers devised for the transmission of sputum. Special data cards to be sent with the specimens are available at the depositories.

FECES AND URINE.

Urine and feces are not examined except in connection with special investigations instituted by the State Board of Health. If examinations are desired for the detection of typhoid carriers or for the proper investigation of some condition endangering the public health, the circumstances should be placed before the Secretary of the State Board of Health in Sacramento.

DISEASED TISSUES AND MISCELLANEOUS PATHOLOGICAL EXAMINATIONS.

Tissue specimens are not examined in the laboratory for diagnosis except in connection with special investigations. Examinations of pathological material are not made except as indicated in this circular. The members of the laboratory staff do not carry on private work for compensation.

PLAGUE.

All cases of suspected plague should be reported at once to the Secretary of the State Board of Health. Under his instructions the Director of the Laboratory will make the necessary field and laboratory investigations.

RABIES.

Dogs suspected of having rabies should be kept chained or confined. If they really have rabies, the symptoms will develop rapidly and they will usually die within six days. If the animals continue to remain healthy, rabies can be excluded.

If a suspected animal has been killed or has died with symptoms suggesting rabies, the head should be immediately removed and packed in ice in a large wooden pail or box. It should be sent by express (charges prepaid) to the State Hygienic Laboratory, and a letter should be written describing the dog's symptoms and stating the number and identity of people and animals bitten. Special directions and data cards are kept at the depositories for the use of persons having occasion to send the heads of rabid animals. All cases of rabies in animals should be reported to the local health officer at once.

PASTEUR TREATMENT FOR THE PREVENTION OF DEVELOPMENT OF RABIES.

If human beings have been bitten by rabid animals the wound should be cauterized immediately by the nearest physician, preferably with nitric acid. Arrangements should then be made at once for beginning the Pasteur treatment for the prevention of rabies. Persons who are able to pay for treatment should arrange with their physician to have the necessary material purchased and administered. Each person who is unable to pay the expenses connected with the treatment should obtain from the local health officer a statement to that effect. The health officer will notify the Secretary of the State Board of Health by tele-

gram, and send his statement and letter of explanation by mail. He will then receive instructions to have the treatment given free of charge at the main laboratory or the nearest branch laboratory. The person to be treated should then travel immediately to the laboratory indicated and report to the Director. If the Director of the Laboratory agrees that treatment is advisable, the free government virus will be administered without charge. Persons taking the treatment at State expense must defray their own living expenses while boarding near the laboratory.

ANTHRAX AND GLANDERS.

The ear from an animal dying of suspected anthrax should be wrapped in a thick layer of cotton or several layers of cloth soaked in a solution of bichloride of mercury—1 to 500—and should be sent in a water-tight box by express, prepaid. Such packages are not mailable. A letter giving the history of the case should be sent immediately by mail.

WATER EXAMINATIONS.

Requests for the examination of water supplies should be made to the Secretary of the State Board of Health at Sacramento. Investigations of water supplies are made only when they are of importance in tracing or preventing the spread of some water-borne disease. When so instructed by the Secretary the Director of the State Hygienic Laboratory will send the necessary containers and directions, express collect. Samples must be properly taken and shipped packed in ice.

MILK.

Examinations of milk cannot be made to advantage at a distance from the source of supply. Therefore this work is not done at the State Hygienic Laboratory except in connection with special examinations. Samples of milk should not be sent to the laboratory for bacteriological examination unless under instructions from the Secretary of the State Board of Health or the Director of the Laboratory.

BACTERIOLOGICAL INSTRUCTION OUTFIT.

A box containing microscopic slides and cultures illustrating public health problems has been devised at the laboratory for the use of teachers and lecturers. Plates showing bacteria from public drinking cups, fly tracks, dirty milk, and dust, are included in the outfit. Application for the loan of one of these outfits should be made to the secretary of the State Board of Health, Sacramento. Applicants should state the purposes for which the outfit is to be used.

LIST OF COUNTY HEALTH OFFICERS.

County	Health Officer.	Address.
Alameda	Dr. C. L. McKown	Niles
Alpine*	County Recorder Frank Smith	Markleeville
Amador	Dr. E. E. Endicott	Jackson
Butte	Dr. L. C. Thompson	Gridley
Calaveras	Dr. E. W. Weirich	Angels Camp
Colusa	Dr. C. A. Poage	Colusa
Contra Costa	Dr. F. S. Gregory	Pittsburg
Del Norte*	County Recorder N. G. McVay	Crescent City
El Dorado	Dr. L. M. Leisenring	Placerville
Fresno	Dr. W. T. Burks	Fresno
Glenn	Dr. J. A. Randolph	Willows
Humboldt	Dr. E. H. Bryant	Eureka
Imperial	Dr. Virgil McCoombs	El Centro
Inyo	Dr. I. J. Woodin	Independence
Kern	Dr. G. M. Bumgarner	Bakersfield
Kings	Dr. Ralph Motherol	Hanford
Lake	Dr. W. E. Upton	Kelseyville
Lassen	Dr. W. E. Dozier	Susanville
Los Angeles	Dr. E. O. Sawyer	Los Angeles
Madera	Dr. Mary R. Butin	Madera
Marin	Dr. J. H. Kuser	Novato
Mariposa	Dr. F. L. Wright	Mariposa
Mendocino	Dr. J. Litchfield	Ukiah
Merced	Dr. C. H. Castle	Merced
Modoc	Dr. John Stille	Alturas
Mono*	County Recorder Geo. Delury	Bridgeport
Monterey	Dr. Garth Parker	Salinas
Napa	Dr. E. Z. Hennessey	Napa
Nevada	Dr. Carl P. Jones	Grass Valley
Orange	Dr. John Wehrly	Santa Ana
Placer	Dr. G. H. Fay	East Auburn
Plumas	Dr. F. D. Walsh	Quincy
Riverside	Dr. George E. Tucker	Riverside
Sacramento	Dr. Hugh Beattie	Elk Grove
San Benito	Dr. J. M. O'Donnell	Hollister
San Bernardino	Dr. Philip M. Savage	San Bernardino
San Diego	Dr. Nathan Hunt	San Diego
San Francisco	Dr. W. F. McNutt, Jr.	San Francisco
San Joaquin	Dr. Wm. Friedberger	Stockton
San Luis Obispo	Dr. H. M. Cox	San Luis Obispo
San Mateo	Dr. W. G. Beattie	Colma
Santa Barbara	Dr. J. C. Bainbridge	Santa Barbara
Santa Clara	Dr. William Simpson	San Jose
Santa Cruz		Santa Cruz
Shasta	Dr. F. Stabel	Redding
Sierra	Dr. R. B. Davy	Downsville
Siskiyou	Dr. F. J. McNulty	Yreka
Solano	Dr. S. G. Bransford	Suisun
Sonoma	Dr. S. S. Bogle	Santa Rosa
Stanislaus	Dr. F. R. De Lappe	Modesto
Sutter	Dr. J. McFadyen	Yuba City
Tehama	Dr. J. S. Cameron	Red Bluff
Trinity	Dr. D. B. Fields	Weaverville
Tulare	Dr. M. E. Pettit	Visalia
Tuolumne	Dr. Wm. Lyman Hood	Sonora
Ventura	Dr. A. A. Maulhardt	Oxnard
Yolo	Dr. W. J. Blevins	Woodland
Yuba	Dr. J. H. Barr	Marysville

*This county has not been able to arrange with any physician to serve as county health officer.

LIST OF CITY HEALTH OFFICERS.

City.	Health Officer.	City.	Health Officer.
Alameda.....	Dr. L. W. Stidham	Hollister.....	Dr. R. G. Curtis
Albany.....	Dr. Robt. Hector	Hollywood.....	E. O. Palmer
Alhambra.....	Dr. F. E. Corey	Huntington Beach.....	C. F. Sorenson
Alturas.....	Dr. John Stille	Huntington Park.....	Dr. W. Thompson
Alviso.....		Imperial.....	Dr. C. E. Standlee
Anaheim.....	Dr. J. L. Beebe	Inglewood.....	Dr. H. A. Putnam
Antioch.....	Dr. W. S. George	Jackson.....	F. V. Sanguinetti
Arcadia.....		Kennett.....	Dr. J. P. Sandholdt
Arcata.....	Dr. G. W. McKinnon	Kernville.....	J. W. Sumner
Arroyo Grande.....		King City.....	
Auburn.....	Jas. H. Brestlin	Kingsburg.....	
Azusa.....	Dr. L. W. Atkinson	Lakeport.....	Jabes Banks
Bakersfield.....	S. D. Mullins	Larkspur.....	
Belvedere.....	Dr. Florence Scott	Lincoln.....	Dr. G. W. Davis
Benicia.....	Dr. W. L. McFarland	Lindsay.....	Dr. W. W. Tourtellot
Berkeley.....	Dr. J. J. Benton	Livermore.....	Dr. H. G. McGill
Biggs.....	Dr. B. Caldwell	Lodi.....	Dr. F. W. Colman
Bishop.....	Dr. J. W. Shute	Long Beach.....	Dr. W. H. Newman
Blue Lake.....	Dr. G. N. Wood	Lompoc.....	
Brawley.....	Dr. L. L. Lindsey	Lordsburg.....	Dr. J. E. Hubble
Burbank.....		Los Angeles.....	Dr. L. M. Powers
Burlingame.....		Los Banos.....	Dr. J. L. McClelland
Calistoga.....		Los Gatos.....	Dr. C. K. Small
Calexico.....	Dr. Wm. F. Smith	Loyalton.....	Dr. G. L. Coates
Chico.....	G. H. Taylor	Madera.....	Dr. Mary R. Butlin
Chino.....	Dr. John W. Callison	Maricopa.....	Dr. H. N. Taylor
Claremont.....		Martinez.....	Dr. E. E. Brown
Cloverdale.....	F. F. Conner	Marysville.....	Wm. Meek
Coalinga.....	Dr. H. S. Warren	Mayfield.....	Dr. F. M. Seibert
Colfax.....	Stiles Utery	McCloud.....	Dr. R. T. Legge
Colton.....	Dr. J. A. Champion	McKittrick.....	G. M. Chitwood
Colusa.....	Dr. C. A. Poage	Merced.....	Dr. C. H. Castle
Concord.....	Dr. F. F. Neff	Mill Valley.....	Capt. M. Staples
Coram.....	Geo. H. Thomas	Modesto.....	Dr. J. J. Knowlton
Corning.....	Dr. W. F. Maggard	Montague.....	
Corona.....	Dr. W. H. Chapman	Mojave.....	A. Smith
Coronado.....	Dr. Raffaele Lorini	Monrovia.....	Dr. R. D. Adams
Cottonwood.....	Dr. A. B. Gilliland	Monterey.....	Edward Allen
Covina.....		Morgan Hill.....	Dr. D. W. Watt
Crescent City.....		Mountain View.....	Dr. A. H. McFarlane
Daly City.....		Napa.....	J. D. Treadway
Davis.....	Dr. W. E. Bates	National City.....	Dr. T. F. Johnson
Delano.....	Dr. H. Hildreth	Nevada City.....	Hugh Murchie
Dinuba.....	Dr. Wm. Whittington	Newman.....	Dr. H. V. Armistead
Dorris.....	Dr. A. A. Atkinson	Newport Beach.....	
Dixon.....	W. C. Rhem	Oakdale.....	Elmer E. Endicott
Dunsmuir.....	Dr. E. J. Cornish	Oakland.....	Dr. E. N. Elwer
Eagle Rock.....	Dr. C. H. Phinney	Ocean Side.....	Dr. R. S. Reid
Eden Township.....	Dr. F. W. Browning	Ocean Park.....	Dr. W. M. Kendall
Elsinore.....	Dr. Hugh Walker	Ontario.....	Dr. C. S. Orr
Emeryville.....	Dr. A. T. Drennan	Orange.....	Dr. F. L. Champline
Escondido.....	Dr. David Crise	Orland.....	Dr. S. Goldman
Etna Mills.....	Dr. W. H. Haines	Oroville.....	Dr. W. F. Gates
Eureka.....	Dr. L. A. Wing	Oxnard.....	Dr. Ralph W. Avery
Exeter.....	Dr. A. D. McLean	Pacific Grove.....	E. B. Richi
Fairfield.....	Dr. S. G. Bransford	Palo Alto.....	Hubert O. Jenkins
Ferndale.....	Dr. C. A. Phelan	Pasadena.....	Dr. Stanley P. Black
Fort Bragg.....	Dr. L. C. Gregory	Paso Robles.....	E. B. Pierce
Fort Jones.....	Thos. Bransom	Perris.....	A. F. Hardy
Fortuna.....	Dr. Geo. S. Loveren	Petaluma.....	Dr. J. M. Proctor
Fowler.....	Dr. W. T. Crawford	Pinole.....	Dr. J. Chatleton
Fresno.....	Dr. Geo. H. Aiken	Pittsburg.....	Dr. F. S. Gregory
Fullerton.....	Dr. F. J. Gobar	Placerville.....	P. J. Hall
Gilroy.....	Dr. John A. Clark	Pleasanton.....	Dr. S. J. Wells
Glendale.....	Dr. R. E. Chase	Pomona.....	Dr. T. J. Wilson
Grass Valley.....	Paul E. Sears	Porterville.....	Dr. O. C. Higgins
Gridley.....	Dr. L. L. Thompson	Piedmont.....	Geo. T. Burtchael
Hanford.....	Dr. R. W. Musgrave	Point Arena.....	
Hayward.....	Dr. G. E. Reynolds	Potter Valley.....	
Healdsburg.....	Dr. J. W. Seawell	Randsburg.....	E. B. McGinnes
Hemet.....	Dr. A. B. Eadie	Red Bluff.....	Dr. G. J. Bailey
Hermosa Beach.....	E. McCaskey	Redding.....	L. D. Poole
Hercules.....	Dr. M. L. Fernandes	Redlands.....	Dr. H. Fortine
Hillsborough.....		Redondo Beach.....	Dr. D. R. Hancock

CITY HEALTH OFFICERS.

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City.	Health Officer.	City.	Health Officer.
Redwood City.....	Dr. J. L. Ross	Sierra Madre.....	Dr. R. H. Mackerras
Richmond.....	Dr. Chas. R. Blake	Sebastopol.....	Dr. J. J. Keating
Rio Vista.....	Dr. A. J. McKinnon	Sisson.....	Dr. G. L. Gouguet
Riverdale.....	Dr. Thos. R. Griffith	South Pasadena.....	Dr. C. A. Whiting
Rocklin.....	Dr. S. P. Rugg	South San Francisco.....	Dr. H. G. Plymire
Roseville.....	Dr. R. H. Ashby	Stockton.....	Dr. S. W. R. Langdon
Ross.....		Susanville.....	Dr. E. S. Drucks
Sacramento.....	Dr. Wm. K. Lindsay	Suisun.....	
Saint Helena.....	G. B. Anderson	Stanton.....	
Salinas.....	S. A. McCollum	Sonoma.....	
San Anselmo.....	Dr. Chipman	Taft.....	E. G. Wood
San Bernardino.....	Dr. C. V. McConnico	Tehachapi.....	R. M. Spencer
San Diego.....	Dr. F. H. Mead	Tracy.....	Dr. J. G. Murrell
San Francisco.....	Dr. W. F. McNutt, Jr.	Tehama.....	
Sanger.....	Dr. T. F. Madden	Tropico.....	
San Jose.....	Dr. H. C. Brown	Tulare.....	Dr. J. B. Rosson
San Jacinto.....	Thos. Lloyd	Turlock.....	Dr. E. L. Clough
San Juan.....	Henry Drake	Ukiah.....	Dr. J. Liftchild
San Luis Obispo.....	W. F. Cook	Upland.....	W. C. Redman
San Rafael.....	Dr. W. F. Jones	Vacaville.....	Dr. A. P. Finan
San Mateo.....	Dr. S. G. Goodspeed	Vallejo.....	Dr. E. A. Peterson
San Leandro.....	P. C. Du Bois	Ventura.....	J. H. Hardey
Santa Ana.....	Dr. J. I. Clark	Visalia.....	Dr. M. L. Pettit
Santa Barbara.....	Dr. D. A. Conrad	Watsonville.....	Dr. F. H. Koepke
Santa Cruz.....	Dr. H. E. Piper	Watts.....	Dr. E. J. Richie
Santa Clara.....	Dr. J. F. Beattie	Wheatland.....	Dr. A. W. Foskay
Santa Monica.....	Dr. W. H. Parker	Whittier.....	Dr. W. H. Stokes
Santa Paula.....	Dr. G. E. ApLynne	Willits.....	Dr. W. L. Blodgett
Santa Rosa.....	Dr. Jackson Temple	Willows.....	Thos. Kinkade
Santa Maria.....	Dr. O. P. Paulding	Winters.....	Dr. J. H. Halle
Sausalito.....	Dr. A. H. Mays	Woodland.....	Peter Scott
Sawtelle.....	Dr. A. B. Hromadka	Yreka.....	E. W. Nolan
Selma.....	Dr. F. H. Williams	Yuba City.....	

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THE VALUES OF FOODS.

CALIFORNIA STATE BOARD OF HEALTH

MONTHLY BULLETIN



Vol. 7

OCTOBER, 1911

No. 4

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REGULAR MEETINGS

The meetings of the California State Board of Health are held regularly the first Saturday of each month, but the quarterly meetings required by law to be held at the Capitol of the State are ordinarily designated as January, April, July. and October.

By courtesy of the University of California the Food and Drug Laboratory and the Hygienic Laboratory are located in University buildings at Berkeley, California.

Address all general communications to the
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OCTOBER BULLETIN.

COMMENTS.

“Guaranteed” Foods and Drugs.—Very many people who read the words, “guaranteed under the (U. S.) Food and Drugs Act, June 30, 1906. Serial No. —,” believe this means that the product which bears the inscription has been examined and is fully endorsed by the United States Government—endorsed not only as to its chemical composition, but also as to the food values or medicinal uses claimed for it. The United States food and drug laws have no control over the truthfulness of any statements that may be printed on the labels of foods and drugs unless the proportions or qualities of ingredients are misrepresented or include prohibited substances. The serial number only means that the company using it has filed a statement in Washington to the effect that all goods bearing that number will comply with the law. As a practical detail in administering the food and drug laws, the serial number is important in identifying products found to be in violation of the law just as the license number on an automobile aids the authorities in identifying the violator of automobile laws, and tends to make the possessor of the number more cautious about subjecting himself to the possibility of arrest. Having been informed of the true nature and composition of a food or drug, the law considers it to be the duty of the citizen to decide whether he wants to buy it or not. It is, therefore, incumbent upon each citizen to know the general principles of digestion and food selection, and the limitations of therapeutic values of the common drugs if he desires to be fully protected.

Medical Science and a Stomach “Complaint.”—Many diseases have passed from the realm of guesswork diagnoses and uncertain modes of treatment to that of scientific methods, in both diagnosis and treatment. The public, too, has become familiar with the usual procedure and equipment for ordinary diagnosis work. Thus, a person expects to put out his tongue, to describe his “symptoms,” to have a thermometer placed in his mouth while the doctor “feels” his pulse, etc. Most persons are familiar with the appearance and uses of a stethoscope, a head mirror, the “X ray.” If a doctor prepares to probe a wound or open an abscess they know how and why he sterilizes his instruments and judge him by his equipment and his skill in using it. There is nothing mysterious in all this, even though they do not know many of the details.

But there still remain many diseases about which the public does not know the importance of scientific methods. To this group belong most of those requiring methods for examination of internal organs of the body. The importance of scientific diagnosis of diseases of the stomach and intestinal tract are particularly slow to be appreciated by the people, and even by the doctors. A physician who solemnly sits down before a patient with a “stomach complaint” and tries to decide what kind of a prescription to write by counting the pulse and noting the

color of eyes, knows about as much concerning the real nature of his patient's disease, or functional disorder, as a customs-house inspector knows about the contents of a trunk by applying the same method to its owner. The doctor knows less, in fact, for the eyes and pulse of the trunk owner will tell a good deal to the inspector. But the inspector does not determine the amount and character of dutiable materials by any such uncertain method. He goes to the bottom of the trunk. Just so the trained doctor thoroughly investigates the disorder from which his patient suffers.

Every observant mother has learned the importance of noting the character of her baby's vomitus, the color of its stools, the evidence of inflation of its stomach, etc. These are but items in a careful examination of the cause of the baby's illness or discomfort. The modern physician is equipped with instruments and laboratory examination methods for thoroughly exploring the alimentary canal from the mouth to the stomach and through the length of the intestines. Where physical examination and the electric light or "X ray" can not be used, the test-breakfast and stomach pump may give the necessary information, and where this procedure is not in order, the capsule methods of introducing test materials and obtaining secretion-reactions may be of value. And so the good physician, like the good machinist, does not give his opinion until he has made a thorough examination. This may require time and the employment possibly of many diagnostic measures, but it is the only way in which accurate knowledge can be obtained.

In time the public will come to realize that the average citizen can understand the working principles of medical examination and treatment, just as well as he understands the general principles on which automobiles and watches and flying machines are built. There will always be those who believe that the man who gazes at the stars in an owl-like fashion, or the woman who gazes at a pack of playing cards in a dimly lighted room, can best manage their business for them, and those who pursue essentially similar methods of medical practice will always have a following; but the mass of the people no longer believe that the child-like belief of savages in charms and seers applies to medicine. The excellent series of articles collected from former issues of the bulletin and reprinted here give in non-technical language much information about foods, which has been found interesting to the public, and which constitutes the general basis for dietaries.

The Influence of the "Disappearing Kitchen."—One of the problems of modern city growth is the condensation of the large, comfortable, family, country homes of our forefathers into homes 10 feet by 12 feet by 50 feet piled eight, ten or more high and flanked on either side by similarly condensed homes. These houses can have light only from windows in the front and back sides, and occasionally the diffused light from an air shaft. The only front yard is the fire escape, the only back yard is a narrow porch, and the limited air space made usable by an aerial clothes line. Under these conditions it is to be expected that disappearing-beds, gas-mantels, and similar devices for economizing space will be popular. To meet this demand has come what might be termed the disappearing kitchen. Just as the spacious, well ventilated old bedroom, with its wide-chimneyed fireplace, has been superseded by the small, illy-ventilated room which serves in the added capacity of

sitting-room by day, so the great, open, cheerful kitchens of old are being superseded by the twentieth century kitchenette. Limited facilities for cooking and serving meals mean limited range of foods which may be considered for the table. Through invention and clever application of the scientific principles of food preservation, this limit has been gradually extended until the tin-can dietary may be made to cover nearly all the ordinary demands for proper food, but the cook must know her trade or the family will severely suffer. It is probable that the "disappearing" house plays a large part in the present-day prevalence of many diseases and functional disorders, especially of the alimentary canal.

The Man Behind the Food Law.—While many men play some part in the enforcement of the pure food laws, it is practically certain, wherever these laws are being operated actively and to the satisfaction of both consumer and producer, that one will find a good chemist behind the law. Food and drug analysis ranks among the most difficult and technical of the divisions of chemistry. Under the provisions of the law triplicate samples are purchased as a basis for food violation cases. One sample is always left with the person from whom purchased and one sample is sent to the Secretary of the State Board to be held as evidence. The third sample goes to the State Board's laboratory for analysis. In many instances the first sample is analyzed by private chemists for the person accused.

Approximately five thousand samples have been thus collected and analyzed. Of this number, 1709 have been found in violation of the laws of California. It is a tribute to the accuracy of work done by Professor M. E. Jaffa, director of the Food and Drug Laboratory, and his competent staff, that in none of these cases have the chemical findings been questioned in court.

GENERAL PRINCIPLES UNDERLYING THE USE OF FOODS.

M. E. JAFFA.

Perhaps there is nothing more characteristic of the day and the hour in which we live than the widespread interest in the subject of food. People have always been interested in satisfying hunger, and tickling the palate, but the modern intelligent men and women are beginning to put earnest thought into the selection of the food materials upon which depends their *life*, health, and working capacity. But thought alone does not properly solve many problems, unless there be first acquired some facts, or knowledge, some good foundation principles upon which to form a judgment or to base a decision.

The scientific principles which underlie the proper selection of foods are simple and easily understood. Chemical analysis has shown us that all foods, no matter how simple or how complex they may appear, contain only four classes of materials. Each class has many subdivisions containing an infinite variety of chemical compounds. But nothing has been found that can not be classified under these four heads. One of these is water, and need not be discussed here. Another is mineral matter, which is found in sufficient quantities in almost all articles of food to insure a plentiful supply to the adult system, through any ordinary diet. For infants, the amount and kind found in milk is suited

to all their needs. That leaves us only two main classes of nutrients to understand and to deal with; the nitrogenous group and the non-nitrogenous.

The question is naturally asked, "Of what use is this classification? In what way does it help the ordinary person?" The answer is at once plain when we consider that these two classes of nutrients have entirely distinct and separate offices to perform in the body. The protein or nitrogenous group builds tissues; the bones, muscles, nerves, internal organs, etc. It supplies material both for the building of new tissues, as in growth, and for the repair of the old. The non-nitrogenous group furnishes heat to keep the body warm and energy or power with which to perform our work. This material may be stored up in the body for future use in the form of fat, but can never be used to build real or deep tissues. Fat in the body is like coal in the basement, ready to be converted into heat and energy. Our need of it after we have accumulated enough fat to round out our frames is in direct proportion to the weather and to the amount of energy we expend in both voluntary and involuntary functions. The man at hard, outdoor work in cold weather requires much more of this class of food than the man writing at a desk in a warm office.

It is important that we should not lean too much to one side or the other in choosing our foods. The seriousness of such a mistake depends absolutely on the circumstances. For instance, to deprive an infant of protein would probably be far more serious than to give it too much; while to overdo the protein with an adult might so injure the organs of elimination as to bring on serious trouble, especially if animal protein were used entirely. As a general rule, an excess of carbohydrates causes less trouble in the system than an excess of protein. This however, would not be a safe rule to follow to an *extreme degree*. Fortunately for us, most foods contain some nutrients from each main class. When we classify foods we place them according to the largest amount or importance of some ingredient that they contain, but that does not mean that they do not contain any other. The following table illustrates this point. Some of our common foods are placed under the class to which they belong, while in parentheses are indicated what important nutrients of the other class they contain. Very small amounts are not so indicated:

TABLE I. Showing classification of foods.

I. Nitrogenous or protein group.	II. Non-nitrogenous group.		
	A. Carbohydrates.		B. Fats.
	1. Starches.	2. Sugar.	
Meat (fat) Milk (fat and sugar). Eggs (fat). Cheese (fat). Fish. Oysters. Nuts (oil). Beans (starch). Peas (starch). Gluten flour (starch).	Flours (protein). Cereals (protein). Bread (protein). Macaroni (protein). Rice (protein). Potatoes. Green vegetables. Fruits (fresh and dried).	Cane sugar. Beet sugar. Milk sugar. Fruit sugar. Syrups. Honey. Sweet fruits. Fresh. Dried.	Meat fat. Fish oil. Butter. Cream. Vegetable oil. (Olive, etc.)

It is important also that we should not ignore the subdivisions. While the sugars, starches, and fats belong in one large class, and apparently perform the same office, they vary greatly in other ways. Starch must first be converted into sugar, in the digestive tract, before it is absorbed and used. Therefore, it would be much more difficult for the body to obtain all of its carbohydrate from starchy food, rather than from starch and sugar both. Again, fat is worth two and one fourth times as much as either starch or sugar for producing heat and energy. The Laplanders and Esquimaux realize this when they eat so much tallow and blubber during the long and severe Arctic winters.

There is another important reason why fat should never be overlooked in the diet of any person. It has an entirely different process of digestion from the other sub-classes of the non-nitrogenous group and separate channels of absorption. A failure to use fat, therefore, tends to overwork the organs engaged in digesting starch and sugar, and throws out of commission that part of the digestive apparatus especially designed for the handling of fat. The disuse of any organ tends to weaken it.

Man has, of course, in common with the animals, a power of instinctive selection of foods; but this power decreases in exact proportion to the degree in which he departs from natural and simple conditions of life. In the complexity of our present system of living, it can be relied upon to a very limited extent only. Especially is this true because very few people have the opportunity of being guided to any extent by an instinctive choice. At best, it is usually a selection from the foods provided by a third person—and *not* a selection from all foods available. It is necessary to keep the balance between the old method that is being given up and the new that is just being learned. Knowledge must gradually take the place of instinct, but it must be real knowledge and not mere notion, or misapplied fact.

A *scientific dietary* is simply an *accurate* use of the plain, ordinary food materials of daily consumption. It is the logical continuation of that first great successful step in this direction, that of modified milk for babies. Just as the ingredients of milk—protein, fat and sugar—when fed in the proportions found in cow's milk (and intended for the calf) caused the illness and death of thousands of infants, while the same ingredients, fed in the proportions found in mother's milk, agree perfectly; so the proper proportions of protein—carbohydrate and fat—form a perfect diet for the older person, while the continued use of the wrong proportions bring about disaster.

The *exact proportion* of the different food classes that should be used in the ordinary diet has not yet been absolutely determined, for there is no other such perfect model to follow as Nature has given us in mother's milk, the perfect food for infants, but it has been established *approximately*. Many experiments have been performed, and much investigation made, all tending toward establishing rules for the proportion and amounts of food materials needed by different people under different circumstances, and the results have been published by the Government. A list of popular publications bearing on this subject will be found on page 92. Very accurate data have been obtained for army rations and have proven practical in recent tests during the Russo-Japanese war.

The food problem is not a problem to all people or at all times. Thou-

sands of men and women who are normal in body and in occupation, eating from the ordinary table, well provided with Nature's well assorted foods and never giving the subject a thought, are as well and as properly nourished as if hours had been spent on their dietaries. But unfortunately they are not in the majority. Cases of malnutrition are only too frequent in people of all ages and from all classes of society. During the past few years physicians have come to realize that many more diseases are due to this cause than was formerly supposed, because the various diseases were named, frequently, from some symptom or manifestation that appeared toward the last, rather than from the first, underlying cause—malnutrition. Sometimes this condition is due to an incapacity on the part of the system to properly utilize the nourishment in the form in which it is given, but more often it is due to an insufficient or incorrect supply. Overnutrition is sometimes as bad as undernutrition, and both are malnutrition.

The first step in the process of adjusting these difficulties, or preventing possible future ones, is to keep clearly in mind the two classes of foods and their use in the body, so that we may provide them in varying proportions, according to the age and condition of the person to be considered. A first general rule that is safe for all people to follow is to eat from both classes and from each sub-class. Each has its place in the human economy and each one probably has its special advantage. Many people give up a group of foods because one or two of the group do not agree. For instance, a very thin person who needs to be fattened will say, "I can not eat fat," because both meat fat and butter are either distasteful or cause distress. They have not tried cream or oil or nut butter; neither do they try the fat in different combinations. It is better to persist until the right article or combination is found than to eliminate an important group from the dietary.

More illustrations covering this point will be found in the following articles which continue the present subject under different heads, and consider the practical application of first principles to different conditions of life.

NUTRITIVE VALUE OF FOODS.

M. E. JAFFA.

The term "nutritive value" of a food is not always used in a proper or exact sense. The term implies the proportion of nourishing material to the amount of water that the food contains. On this basis, some people have come to use the term carelessly, as synonymous with dry matter. This is often misleading, especially at first glance. Two foods may have the same amount of water and the same amount of dry matter, and yet one may contain more nourishment in its dry matter than the other. For instance, bread and full cream cheese have been said to have the same nutritive value because they have about the same proportion of dry matter. But the dry material of cheese contains 33 per cent of fat, while bread has only about $1\frac{1}{2}$ per cent. As fat is worth $2\frac{1}{4}$ times as much as starch (the other ingredient of bread) for heat and energy, the cheese is of far greater nutritive value.

Again, we must remember that the nutritive value to the individual *depends upon* the particular nutrient that he is in need of. In looking *over a table of foods* in search of those that may be valuable for a *certain purpose*, we must always bear in mind that the fuel value of

starch and of protein are the same, although it is undesirable that we should get our fuel from protein. Real value depends upon the use we make of material, and therefore the nutritive value of a food varies with the need of the system for it.

The word value usually has an associating thought of money, and there is this element to be considered also. In buying food *by the pound* we pay for water that is in it, as well as for the dry matter. Therefore, the less water it contains, other things being equal. the cheaper it is, even though the price per pound be the same. This difference in food must not be lost sight of in looking over tables or lists of nutritive values.

In the following graphic presentation of food values we have attempted to show at a glance the proportion of water, protein, carbohydrates, and fat that some of our common foods contain.

The caloric value or fuel value is not represented. For those who would like such information Table I is inserted. The caloric is the unit of heat.

Table Showing Cost of Foods as Regulated by Protein and Fuel Values.

Kind of food material.	Price per pound.	Protein.	Fuel value per pound.	Cost one pound protein.	Cost 1000 calories.
	<i>Cents.</i>	<i>Per cent.</i>	<i>Calories.</i>	<i>Dollars.</i>	<i>Cents.</i>
Meat—					
Round	12.5	19.2	745	\$0.60	18.0
Sirloin	18.00	18.0	985	1.00	18.0
Milk 10c a quart	5.00	3.5	310	1.40	15.0
Milk 15c a quart, certified	7.50	3.5	310	2.15	22.0
Skimmed milk 2½c a quart.....	1.25	3.5	255	0.36	5.0
Eggs—40c a dozen	25.00	13.0	735	2.00	36.0
Cheese, Swiss	35.00	27.5	2010	1.30	17.5
Cheese, Cheddar, full cream	20.00	26.0	2145	0.80	10.0
Cheese, Cottage	15.00	20.0	310	0.75	45.0
Beans	5.00	22.5	1605	0.20	3.0
Wheat flour	3.50	10.0	1600	0.30	2.5
Wheat bread	5.00	8.0	1205	0.60	4.0
Corn meal	4.00	10.0	1700	0.40	2.5
Rice	8.00	6.0	1630	1.30	5.0
Potatoes	2.00	1.5	310	1.30	6.0
Apples	4.00	0.5	220	8.00	8.0
Bananas	7.00	1.5	460	4.60	14.0
Peanuts	10.00	32.0	2610	0.32	3.9
Walnuts	20.00	15.0	3075	1.30	6.5

DIGESTIBILITY OF FOODS.

M. E. JAFFA.

The chemical analysis of foods gives us the varying amounts of the different kinds of nourishing materials they contain. But these materials differ in regard to their digestibility, and differ in two distinct ways. One is, in regard to the proportion of nutrients that the average healthy person is able to extract or appropriate from them, without regard to any digestive peculiarity. We do not assimilate all of the nourishment that any food contains, but we get far less from some than from others. The amount that is *usually* assimilated is referred to as the “available” material. We sometimes use the words “digestion coefficient” to signify the *proportion* of available material that a food contains.

This kind of digestibility has no relation to the second kind, which is popularly used to denote foods that are difficult for the stomach to handle or which may cause distress or disturbances of different kinds. *We should not confuse* a food that requires a long time to digest with

COMPOSITION OF FOODS GRAPHICALLY SHOWN.**LEGEND.**

Water.



Protein.



Fat.



Carbohydrates.



Lean Beef.



Eggs.



Fish.



Milk.



Cheese, Full Cream.



Cheese, Cottage.



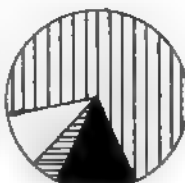
Butter.



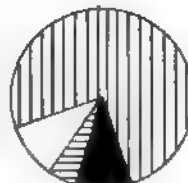
Flour, White.



Flour, Gluten.



Oatmeal.



Cornmeal.



Rice.



Potatoes.



Beans, Dried.



Sugar.



Bread, White.



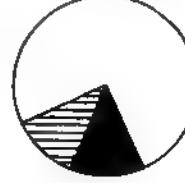
Fruit, Fresh.



Olives.



Walnuts.



Peanuts.

one that may be impossible of digestion. That part of the food which is considered in a table of values to be digestible or available may be digested either slowly or quickly, with ease or with difficulty, and with comfort or with distress. The readiness or ease with which foods are handled depends not only upon the food itself, but upon the method of cooking and the idiosyncrasies of the person eating it. Some foods are by their nature more difficult to reduce to the form in which the body can make use of them than are other foods, but it is often due to the way in which they are prepared or to the foods with which they may be combined. For example, recent investigations show that two different kinds of fat can not be well digested at the same time; therefore, fat meat might be handled well at one meal when eaten with only bread, vegetables, and fruit, while it might not be digested the next time if used in connection with a mayonnaise salad, thickly buttered bread, and cream cake. As a rule, the fewer articles of food eaten at a meal, the more rapid and easy is their digestion. Another case in point is where a food that requires the action of the gastric juices is closely overlaid and surrounded by another food that is ready and perhaps waiting for intestinal digestion. Much also depends upon the condition of the person at the time of eating. A digestion already overtaxed may rebel against the handling of a food that would cause no difficulty at another time. Not only does the condition of the digestive organs play an important part, but the condition of the man himself must be equally considered. A tired brain and body are not apt to allow of full vigor of any function of the body, and the digestion suffers if this fact is not properly considered in times of unusual fatigue.

The question of digestibility is a long and intricate one. There are so many elements that enter into it that it would be impossible to consider them all here. It involves many different conditions even in the same food, and many varying conditions in the same person, to say nothing of the various idiosyncrasies of different people. The many morbid or pathological conditions that interfere with digestion or require special diets are always to be considered by a physician.

The psychological element plays a large part at times. The craving for a food and the enjoyment with which it is eaten certainly help in its digestion very often. The first flow of gastric juice is due to nerve stimulation and because it is increased or "started" by the odor or taste of food, etc., is called "appetite juice." The second is dependent upon the chemical stimulation by the first. This explains the fact of dyspeptics being able to digest a food better if it has an agreeable taste, or when accompanied by a condiment. This must not be confused with the other very different one of allowing appetite and desire to rule continually in the selection of food without regard to the laws of hygiene or moderation. Another psychological element, which is perhaps the converse of the first one, is the very depressing effect that constant fear and worry over the daily food often have upon the digestion. An over-consciousness concerning any organ is not beneficial to its condition. To be constantly afraid of what we eat, constantly in doubt, and always watching for results, is not conducive to general vigor and normal functions. When special needs must be considered, it is far better for any other than the person himself to be the one to consider them. If there is no one else to do so, then a careful decision should be made, lists of foods written out *and the subject dropped from the mind as a problem, and the selected article eaten in confidence and security of mind.*

THE FAMILY TABLE.

M. E. JAFFA.

The home table is the "Mecca" toward which the traveler, the homeless, the restaurant frequenter, turns with longing eyes. But even this best of all good places at which to eat has some disadvantages. There is still something to be said in favor of the wider choice afforded by a meal that is served *à la carte*. The most attractive and best cooked "home dinner" is not always adapted to the needs of all the people who gather about the board.

In the first place, the needs of the various members of the family are apt to differ very radically, and one person is often sacrificed to the demands or tastes of the others. It takes a great deal of time and thought to plan for the different members of an ordinary household. "Baby" usually fares well so long as the baby routine requires special dishes and different hours. But when she graduates into family routine the dishes that she partakes in common with the rest are not apt to be prepared according to her needs. They are seasoned and spiced and served with sauces to suit the adult taste, and there is more variety than is good for her and an absence of "truly baby dishes." Her heaviest meal is apt to be at night, because the men folks must have their dinner at that time, even though her sleep be disturbed in consequence. Mother, too, is often too weary to digest a heavy meal in the evening, especially after preparing and serving it. She eats hurriedly in order to "catch up," because the first person served will soon be ready for a second helping, and because she does not wish to delay the coming of the dessert. She does not eat enough, and does not digest it perfectly because of the hurry and the weariness. How much better it would be if she and baby could have a nourishing and substantial meal at noon when the dining-room was quiet and there is plenty of time to eat and when neither one was exhausted. It need not be an expensive meal or one difficult to prepare, for extra work must be considered. How much better condition mother would be in to consider the needs of the other members of the family when dinner time comes.

What are their needs? Father sits in the office all day and writes and thinks and directs and plans. He is tired, but hungry. His lunch at the restaurant has been trying to his digestion. Perhaps the bread was underbaked and the stew greasy. He needs food that is tempting in appearance, taste, and odor—something fairly easily digested. His stomach shares in the general weariness of the body, but it will do its work properly if given something that stimulates the stomach muscles and the gastric glands, which are sympathetic to the sense of taste, odor, etc. The meat dish is apt to be more attractive in this way than the other things, and he eats heartily of it, even though he has had meat for lunch. Johnnie has been at school during the early part of the day, studying part of the time, and having a jolly time with the boys at recess. He has been out of doors three hours playing baseball and climbing fences and walking home. He is as hungry as a bear, and could be almost trusted to digest leather. Everything looks good and tastes good to Johnnie. The food requires no extra spices or flavors, no *fancy touches* to attract him. In fact, spices and peppers are distinctly *bad for Johnnie*. They are apt to stimulate into consciousness nerves

that should be sound asleep with the rest of him in a couple of hours. But Johnny likes the meat as well as Father does, although Mother serves to him less in spite of his hints. She forgets that he ate a hasty lunch of rice and a banana, that he does not like milk, and that eggs have been too expensive for breakfast. She was brought up to believe that children ought not to have too much meat, but she has no definite idea of what constitutes "too much." She shakes her head at Johnnie when she sees him putting lumps of butter on his bread; she does not approve of excess. But Johnnie has been burning up fat during his baseball game; he needs to replenish the supply, and Johnnie is growing and needs growing material more than Father does. He can not get it all from one meal either, and it would often be beneficial to both parties if part of Father's serving went to Johnnie, and Johnnie's to Father, at every meal. More than that, grown people often allow themselves to partake of very "*indigestible*" dishes, while they conscientiously deny them to the children. It is frequently the case, however, that the children, who have no other strain upon their forces, could digest these dishes far more easily than can their parents; not that they are to be recommended for the use of children for that reason. And how about Aunt Jane? The doctor has forbidden her to eat meat, so she comes to the table and eats the other things. The ordinary dinner, *minus* the meat, is not a proper meal for her. *She* should have the glass of milk that Miss Elizabeth, aged 8, is drinking with her dinner, simply because she has not yet given up her baby habit of expecting and asking for milk with every meal. Elizabeth is average size, plump, and thriving. She is not growing rapidly, is not overactive, but has a large appetite. She eats everything that every one else eats, and probably does not require the milk. Aunt Jane needs it, but refuses it, not because she dislikes it or because it disagrees, but because she does not know that she needs it as a *food*, and prefers *tea as a drink*. Elizabeth has milk at noon, too, which makes a good meal with almost any other thing that Mother provides, although Mother and Johnnie have *only* had the "other thing," which is probably *not* enough for them. And thus it goes.

It is very important that the mother should keep in her mind these different needs and problems of the various members of the household. They can not *all* be considered always at each meal, but they should each have their turn at being carefully and thoroughly thought over and planned for. She must always remember that she can not properly consider the needs of any person at any meal without keeping in her mind what their other meals are. The lunch of a man who eats eggs for his breakfast is a different problem from the lunch for the man who has toast and coffee only.

The family dinner need not be a very intricate or complicated affair if the special needs of *some* members of the family are considered at other meals. A change in Johnnie's breakfast might make his dinner better suited to him; and a change in Aunt Jane's lunch might have a similar result for her. Thus, a very little change at dinner might be all that is necessary to round out any needed reforms. Some other dish than the meat could be made equally tempting to Father, and the spices or condiments that he requires for digestive stimulants could be served *separately in sauces, etc.*, so that the tastes of the younger members of *the family would not be cultivated in this direction*. Macaroni in

place of potato would help out for Aunt Jane and Johnnie, and would not do an injustice to anybody; so would bean, pea, or lentil soup instead of beef soup help out in this way. Cheese, nuts and cup custards as well as milk are easy extras to have on hand for the non-meat eaters and rapid-growers.

In planning a dinner for four or five people, we should learn to have a mental picture before us of (1) The classes of foods and what they do for us; (2) The needs of the people in general and in particular; (3) What their other meals have been or will be. Dinner is not necessarily the most important meal of the day. But, as all the members of the household do not, as a rule, eat all three meals at home, the evening dinner becomes the important factor in the daily dietary for many people and the one time when home is supposed to perform its primal function of ministering to the individual needs of the individual homedweller.

FOOD FOR GROWING CHILDREN.

M. E. JAFFA.

There are two periods in the life of a child when the question of food, from the standpoint of pure *nourishment*, aside from its digestibility, is most important. These are the periods of rapid growth. We have come to know a great deal about the food for the first period, that of babyhood, especially since the chemical analysis of mothers' milk has furnished us with a perfect model upon which to base our selection of substitutes in artificial feeding of infants and for the year or two following infancy.

But the second period of rapid growth that comes early in the "teens" is not yet so generally understood. During these years of adolescence, when Nature is making every effort to develop and round out the perfect individual, she needs all the help we can give her. She can not build if we do not supply her with material, but she can, and often does, build one part at the expense of another. It is a common thing to hear a mother say, with reference to a child, that he "outgrew his strength." Translated, that expression means that the child did not get, or was not able to use, sufficient food material to supply all the needs of the entire organism. When we stop to consider that practically every boy of twelve or fourteen exercises more than the average father and mother, is using his brain for study, and is growing rapidly besides, we see at a glance how much more food material he requires proportionately, and the question is, how to supply it. What kind does he need? *All kinds.* He needs protein "to grow on," to enlarge every tissue of his body as he builds up the frame of a man, and he needs a larger proportion of it than is required by the average adult; and the other kind, the non-nitrogenous, to furnish heat and energy for his exercise and sports, and to round out his body with fat.

While he needs a large quantity of protein, he should not get it all from meat. Remember the meat substitutes and make good use of them at his "non-meat" meals. Give him milk and eggs and nuts and cheese—not all at one meal, however,—and macaroni and beans, lentils *and peas*, and he will not crave meat so inordinately as some growing boys do.

He needs a large quantity of carbohydrate—but do not expect him to

get it *all* from starchy food. It is very bulky and requires one more process of digestion than sugar does. Do not be afraid of sugar. Remember that mothers' milk contains five per cent sugar and is a perfect food for a rapidly growing body. Give the girls and boys candy for dessert, nut candy especially, or dates and raisins, and use sugar in the cooking. It furnishes nourishment in a concentrated form. And *fat*—do not ignore it. Fat is worth two and one fourth times as much as starch or sugar for producing heat and energy. If meat fat does not agree, try cream or oil. See to it that he has a fair chance at each group of foods.

His instincts will lead him to choose the all-round diet that he needs, provided he has an opportunity of selection, but it will not lead him to the grocery store in search of some needed material. To limit his choice to a few articles is to tempt him to overuse the one that appeals to him the most. To regulate his diet entirely to the taste or fads of the "grown-ups" is to hamper him most cruelly. Grown people have the right to experiment as they will with their own food and carry out any pet theories on vegetarianism, raw food, etc. They may be on the right road, or they may find their error before great harm is done. But to make a mistake in food during the period of rapid growth and effort at maturing is to make a mistake that can not easily be remedied. It is often a case of "now or never," and the work that is not done in this second formative period of life may not be done at all. Weak spots in the building will always remain weak spots, and we should not run any risks at this time.

Many of the nervous symptoms usually observed during the period of adolescence are not necessary or normal. The nerves suffer from insufficient and improper nourishment, as well as from other wrong and unhygienic conditions during the early "teens."

If the child seems unable to handle the amount or kind of food that his age and growth seem to require, he should be relieved of all strain, all unnecessary demands on the reservoir of strength and energy, so that he may have a sufficient quantity to devote to the important process of digestion, assimilation and growth. No education obtained under such circumstances is worth the loss or interference with the normal development of these years.

In providing meals for such cases some concentrated food should always be used in connection with the more bulky varieties. Fruits and vegetables have a hygienic as well as a nutritive value, and must never be ignored. Organic phosphates are very essential in growth, and care should be exercised in the cooking of vegetables in order that this valuable material reaches the table instead of being thrown out in the excess of water often used in the boiling process. Baked or steamed vegetables are better for this reason. Graham bread and bran "coffee" furnish these valuable phosphates also.

If parents were as thoughtful about the food of their children during the adolescent period as they are during the period of babyhood, we would not have so many inefficient men and women.

FEEDING CONVALESCENTS.

M. E. JAFFA.

At no period of life, perhaps, is the subject of food more important than during the period of a child's convalescence from disease. During the actual course of the disease there is usually an attending physician, who, if he is properly discharging his duty, prescribes the daily diet as carefully as he does the medicine or other hygienic care. But as soon as the disease is fairly over, and sometimes even before this stage is reached, the physician's visits cease, and the little patient is left to the wisdom or ignorance of the mother, modified by the notions or fads of an "advisory board" of neighbors and friends.

For this reason the child often fails to regain his normal vigor, and his future ailments or lacks are attributed to the disease itself, instead of being assigned to their real cause, a failure at normal recuperation. These periods of convalescence are very important ones in the child's life, and are sure to bring results for good or evil in his future development.

They are often, indeed, the mother's golden opportunity to do for the child's general development and upbuilding what she has not been able to accomplish before. To force nutrition during ordinary periods in a child's life is often a difficult matter. Habit is strong in the system, and whatever little sluggishness or impediment has prevented the original formation of a robust constitution, continues to interfere with efforts for improvement.

But nature is quick and persistent in her efforts at repair work, and will take assistance at such times if at no other. While she is in the mood for building, she will build a little more if she is kept well supplied with material. Many children have come out of the sick room in better condition than they went into it, a condition due entirely to the fact that good nursing and feeding have allowed nature to do more than she had been able to do at any other time.

The other important element in the case must not be ignored, the quiet, regular life of the well-cared-for convalescent, which allows nature to devote her best energies to the work in hand, instead of having it diverted from its first need by maintaining the child through long hours of exciting and sometimes exhausting play. Many undesirable tendencies in the constitution are entirely overcome at these times for the same reason perhaps, that while nature is engaged in fighting the acute disease, the same latent force which has been aroused for the emergency continues to act on the sub-acute or chronic trouble.

The feeding of any convalescent is important, but it is so in far greater degree with a *child*, when, during the growing period, instead of building tissue, the system has been busy tearing down this valuable material and converting it into fuel to be consumed in the fever. The fat is the first tissue to be broken down, in cases of loss of flesh, but the muscle is next drawn upon, and, even during convalescence, when the patient begins to exercise, this dangerous process may continue if the food is not sufficient to supply all the requirements of the body.

The kind of food that is of first importance, therefore, is the deep *tissue building class*, the proteids, such as meat, fish, eggs, milk, etc. *Those that yield heat and energy and build fatty tissue can afford to wait for second place* until the patient has gained a good appetite and

can handle a sufficient quantity of food. Where previous kidney complications require continued care in the selection of foods, the diet should be prescribed by a physician.

All food should be of a kind to be easily digested, for while we wish to offer the system a full supply, we do not want to strain its capacity by difficult digestive processes. For instance, the meats should consist of broiled chops or steaks, or roasts. All fried foods, mixtures "warmed overs," and made dishes should be avoided. The "between meals" should consist of food or drink that is especially easy to handle. For two reasons the first food should be given as soon as the little patient is awake. The sub-normal temperature in the morning shows lowered vitality at that time and suggests the need of nourishment—and also, if we are to have extra meals, we should have a long day for them, so as to insure proper intervals. A hot drink of malted milk or prune juice and water, or cambric tea (milk and water, or cream and water, with sugar) will prove gratifying, give nourishment, not interfere with the breakfast appetite, and will probably keep the child from showing nerves or temper during the process of the toilet or the wait for breakfast. If this drink is given at 6:30 a. m. the breakfast may be prepared for 8 or 8:30, about as follows: Mush, soft boiled egg (or eggs, according to the age of the patient); milk and toast; or, flakes, poached egg on toast, which has been dipped in milk, and stewed fruit, if prune juice has not been given previously.

If a child dislikes milk, do not try to force it by adding chocolate or cocoa. It is not likely to agree with him. It would be far better to use malted milk or "bran coffee" and cream for a hot drink.

At 12:30 a dinner of soup meat or fish, baked potato, fresh vegetable, and simple dessert should be given. The soup should be served in small quantity, but rich and well flavored. Roast bones impart a relishing flavor to soup.

At 3:30 or 4 p. m. a light meal of custard, junket, arrowroot, orange gelatine, milk, eggnog, grape juice or fruit may be given, and at 6 or 6:30 a supper which should be light but nourishing. It is difficult to prescribe a meal without knowing what the choice for the previous ones has been. For instance, if egg is not fancied for breakfast, it should be given or used in the cooking of the supper. If no large amount of fruit has been used previously, it should appear on the supper tray. Otherwise the dessert for this meal should consist of some simple milk pudding—junket, custard, or sago or gelatine pudding with cream. There should be either milk soup or cocoa each evening, a cereal or rice, macaroni or cream toast, and either egg, fish or scraped beef sandwiches until the patient is a young child.

In planning the dietary, the first class or protein foods should be arranged for before all else. After the proper amount of meat has been provided, the most important thing is to see that milk and eggs are not neglected. Many children who do not seem to digest eggs well, will do so perfectly if only the white is given. It can be beaten and incorporated into many articles of food without the patient detecting it, as in arrowroot, after it is cooked, or in baked potato, etc., or the whole egg may be used for sponge cake, muffins, etc., without inducing a sense of being surfeited with egg. In the same way, if entire milk does not agree, the infant formulas may be resorted to. Four ounces of top milk, *four of water*, and three teaspoonsful of lime water are an

easy one to try. Milk is the surest and best of this group, because it may be used in large quantities with impunity; and in this connection we may say that skim milk is just as valuable as whole milk when we are considering protein, and is digested more easily than whole milk, by *some stomachs*.

Milk may be used in very many ways so as not to pall upon the appetite. It may be given cold or heated as a drink, in eggnog, in cocoa, as a milk soup, or in milk toast. It may be used instead of water for cooking potatoes or cereals, as rice, farina, etc., or with arrowroot or cornstarch, and in milk puddings. It is most easily digested as junket.

The nut butters come under this class of proteins and, if fresh and well prepared, are especially useful if meat is forbidden and milk does not agree. Dried beans, peas, and lentils used for soup, after long cooking, will also furnish a large proportion of proteid. Cottage cheese is a most valuable meat substitute, as it contains nearly as much proteid without any of the undesirable extractives that are present in meat.

The second class is not so apt to be overlooked as it includes so many sub-classes, all of which furnish material to replace the lost fat as well as to furnish heat for the body and energy for work, both muscular and functional. Of the three sub-classes, starch, fat and sugar—fat is worth two and a quarter times as much as the others in *heat production*, a point to remember with some patients.

The fats and oils are especially valuable, and if they are not tolerated by the stomach we may feed them to the patient by inunction. A large amount of olive oil will often be absorbed by the skin if well rubbed in, especially if a previous sponge bath has cleared the pores.

The sugars are valuable as requiring very little energy for digestion and share with fat the advantage of furnishing very concentrated nourishment. This is an important factor in crowding food. Sugar should be used in the cooking, and sweet dried fruits, as raisins and dates, should be given when suitable.

The starchy foods should be thoroughly cooked, eaten slowly, and combined with some other food that is quickly or easily digested. If the digestion of food seems slow, starchy food should not be repeated too frequently, as slow digestion permits fermentation. Oftentimes the hard or crisp crackers are more quickly digested than bread, and flakes, grape nuts, shredded wheat, etc., are more easily handled than mush by weak stomachs.

The feeding should continue to be the subject of earnest thought until the little patient has passed entirely through the period of convalescence, and is as fat and rosy and active as ever, and has more than regained the lost weight. The "between meals" may gradually be withdrawn as the patient improves, or as soon as this plan interferes with the appetite of the regular meals. As nature regains her balance, she shows her lessened need of material by a decreasing appetite, and her suggestion should be heeded.

MEAT SUBSTITUTES.

M. E. JAFFA.

Meat is, perhaps, one of the most universally used articles of the class of *concentrated protein* foods. Like most things in this world, it has its *advantages and disadvantages*—it has its advocates and its detractors.

Meat is one of the most easily digested of its group, and is also more stimulating than are even the other forms of animal protein. It has, however, the disadvantage of containing certain elements, the elimination of which may become a strain to kidneys that are not perfectly normal, or have been overworked. Under such circumstances, as also under those of remoteness from the source of supply, physical or ethical repugnance, and economic reasons, the dietary must be constructed without this article.

In eliminating meat from the daily dietary of those accustomed to partaking of it, it becomes necessary to provide proper and adequate substitutes. Many people may benefit by a temporary change of this kind, or even by a permanent one, but there is a large class of individuals to whom such a radical change might prove detrimental, unless proper thought and care are given to their needs. All people can not handle the different meat substitutes equally well, and they must be carefully selected. An average healthy adult with sound digestion can easily obtain the protein his system requires from beans and nuts and cheese, etc. But very young children and people with weak digestions can not be expected to digest beans and cheese. They would require different kinds of meat substitutes, milk and eggs, etc. Neither of these articles is *cheap protein* at present prices, and we are being prevented from buying "skim-milk," which is one of the best and cheapest forms in which we may obtain animal protein, by ordinances as foolish as they are unjust.

Skim-milk, properly labeled and sold at ten cents a gallon, as has often been done, is one of the best, cheapest, and most easily digested forms of protein that we have. We might as well prohibit meat being sold without its fat as milk without its cream, when we are using it as protein and not as a complete food. Skim-milk would be a boon in any family of small income. It can be used to great advantage in the cooking, or made into cottage cheese, besides being used as a drink. While the children of the poor are getting less protein than they require, many animals, such as pigs and calves, are being reared to a healthy and profitable maturity by the large use of skim-milk.

The following table may prove a useful guide for non-meat eaters. The housekeeper can see how much of other protein foods she must substitute for *each pound* of meat that she is giving up. It need not all be taken from *one* kind of food. Beans and eggs, or milk and eggs—or cheese and milk, etc., may be used. If the family has been in the habit of having three pounds of meat a day, they need three times that amount of any of the articles given below, or the given amount of three kinds,—to replace the meat.

One pound of lean meat is equal to (protein alone is being considered) :

- Two and one half quarts of skim-milk.
- Three quarts of whole milk.
- One and one fifth pounds of uncooked old-fashioned oatmeal.
- Six sevenths of a pound of dried beans.
- Five sevenths of a pound of dried peas or lentils, or chick pea.
- Two thirds of a pound of full cream cheese.
- One pound of cottage cheese (fresh and moist).
- Ten or twelve eggs (rich also in fats, etc., not counted).
- Three fifths of a pound of shelled peanuts or pignolias.
- One pound of shelled almonds or walnuts.

It must always be remembered that foods vary in the amount of available protein. We do not assimilate all there is in any food, and, as a rule, the system appropriates less of the protein from beans, nuts, etc., than from the other foods on the list.

The above amounts are intended as guides merely; they are not to be considered as technically exact. It may be valuable to remember, in considering the above list, that milk and cheese and nuts have *none* of the elements that help to cause uric acid troubles in the system. There are others, not found in this list, as bread and macaroni. Beans and peas and eggs have some purin bodies which are harmful elements, but not nearly as much as *meat* or *fish*.

SOME POPULAR ERRORS.

M. E. JAFFA.

There are a number of theories on the subject of foods that seem to have gained a hold on the popular mind, although they have no real foundation in fact. Perhaps they have been accepted readily because they are pleasant to hold, or may make catering less difficult. It would be impossible to discuss many of them at this time, but some of the more common ones may serve as examples.

Coffee Substitutes.—Mistaken ideas have arisen in the popular mind regarding the nutritive value of coffee substitutes. In the past, extravagant claims have been made for the nutritive value of decoctions prepared from these materials. On the label of one appears the statement that "it aids digestion, soothes and quiets worn and wasted nerves, and as a complexion beautifier can not be equaled. It tones the blood, and by its daily use will impart to the skin a healthy glow of youth." This label would be better suited to a patent medicine than to a food or drink and is as false as it is ridiculous. Another brand claims that it "nourishes, strengthens, and vitalizes." Let us see how much nourishment there is in these drinks. Skimmed milk is generally considered a pretty thin beverage, but comparing it with the coffee substitutes, one would have to drink about nine pints of the infusion to get the amount of protein furnished by *one glass* of skimmed milk. The protein furnished by skimmed milk is to be preferred to that furnished by almost any other food. It must be remembered in this connection that in such statements the hygienic question of hot or cold drinks is not considered. Viewed from the nutritive standpoint alone, these coffee substitutes depend more, for their food value, upon the milk, cream, and sugar used than upon their own soluble constituents.

Predigested Foods.—Many people think that it is advisable to use predigested foods in order to lessen the amount of work that the digestive organs have to do. This is only true in pathological conditions, where, for one reason or another, the digestive functions are impaired. In the case of a normal, healthy person, predigested foods should not be extensively used.

Each organ and gland of the body has a certain function to perform. If prevented from performing this function they are not apt to remain in a vigorous condition. The digestive juices must have material to work upon, or else they will either cause irritation by their presence, or cease to be secreted. Either condition is detrimental to health. It is not an infrequent experience to find that when ordinary food is resumed after a prolonged use of predigested ones that the normal secretions and ferments have so diminished as to make digestion very difficult.

This is also true of a too prolonged liquid diet, as milk, for instance. *The adult stomach* is intended to digest solid food, or a mixture of solid

and liquid, and is often weakened by enforced inactivity through the use of liquids only.

White Bread vs. Whole Wheat Bread.—There are many people who, through faulty information, hold to the belief that white bread contains very little, if any, of the nitrogenous materials, or protein, originally contained in the wheat—hence the *raison d'être* of the expression “White bread is the staff of death.” The question has been fully investigated by the United States Department of Agriculture, and it has been conclusively shown that white bread contains about 3 per cent less protein than graham or whole wheat bread. On the other hand, extended experiments have shown that the protein of the white bread has a far higher digestion coefficient than has the protein of either whole wheat or graham bread. In other words, we do not get the advantage of much of the protein of the bran, which seems to be better digested by cows than by humans. We see, therefore, that the statements that are made disparaging to the use of white bread have no foundation in fact, as far as *nutritive value is concerned*.

There are, however, other elements to consider in this case. The “roughage” that we find in graham bread, due to the presence of the bran or hull, has a mechanical effect upon the intestine, which is valuable *when needed*. It stimulates, by a slight irritant effect, an intestinal wall that might otherwise be sluggish, and helps it to perform its function. This result is desirable if the irritation only brings the intestinal functions up to the normal; any action beyond that point would not be desirable, as the food would be hurried along without proper time being allowed for the absorption of the nutrients by the alimentary canal.

There is a second advantage to the body from the use of graham or bran bread which is only lately beginning to be understood. The bran of wheat contains quite a percentage of organic phosphates, a valuable element. Recent scientific experiments upon cows have shown that many disturbances follow the feeding of bran from which the phosphates have been washed out by water. Cows digest bran far better than human beings can, but in spite of that difference, it is fair to suppose that the phosphates might be taken from the bran by the human system also, as they are easily soluble, even if the protein were comparatively unused. If this is true, then a drink made from bran would be most valuable to those who are in need of phosphates.

Breakfast Foods.—These foods have within the last decade come into very general use all over the country; they are put up in a very sanitary manner, and in general are attractive and palatable to most people. They possess many advantages over the foods which they are intended to replace, viz., the meals used for making “mush” or porridge. The latter require considerable time for preparation, while the former are ready for immediate use. But since the advent of the Fireless Cooker, by means of which the mush may be ready for the earliest or most hastily prepared breakfast, this special advantage of the breakfast foods has rather decreased. It is doubtful, even with these advantages, if the “breakfast foods” would have come into such general use had it not been for the extravagant claims formerly made on the labels of the packages. The statements have been very greatly modified since the operation of the National Foods and Drugs Acts of June 30, 1906, and the different State Acts. To-day the labels are more in accordance with *the facts of the case*. One can now, by carefully scrutinizing the labels,

arrive at an approximate idea of the value of these foods. This was, with reference to a good many of them, hardly possible five years ago.

In general, it may be said that these breakfast foods, or cereal foods, as they may be called, are made from the different grains—corn, wheat, oats, barley, rice, etc., and therefore the total nutriment contained in the prepared foods can not be any greater than was contained in the grains from which they are prepared. Any other statements appearing on the labels are misleading and deceiving. Wheat is used perhaps more than any other grain. At the same time, there are a number of these foods the preparation of which includes wheat and barley, and sometimes a combination of three grains. One claim that is made by some of the manufacturers of these foods is that they are more or less predigested, and that the starch is partly converted into sugar. The object of this partial conversion, or malting process, is to increase the ease of digestion of such carbohydrates. The conversion is never complete. Investigation shows that at the best only about one half, and, in a considerable number of cases, less than a quarter, of the total amount of starch present has been either fully or partly converted into sugar.

Perhaps some people having weak digestions might derive benefit from the use of these malted preparations as compared with the use of the ordinary mushes. But it could be safely said that with the average healthy person the nutrients of the so-called predigested, or malted, products are no more thoroughly digested than those of the preparations which were not malted, and that the total nutriment contained in these preparations is not greater, either in protein content or fuel value, than the good old-fashioned oatmeal. It is also true that the available nutrients of the cereal breakfast foods are less than those of either graham, whole wheat, or white bread. It must not be thought from these statements that breakfast foods are not wholesome or nutritious, but they should be considered in accordance with their nutritive value and also from the standpoint of economy. Breakfast foods cost two or three times as much as the old-fashioned meals furnishing the same amount of nourishment.

Soup and Soup-meat.—Perhaps even to-day a large number of people still hold to the idea that all of the “nourishment” is in the soup and none in the soup-meat. Scientific investigation has shown, however, that elements that are dissolved out of the meat are mainly stimulating in their character and that nearly all of the real protein, the tissue building material, remains in the meat. The economical way to handle the meat, then, would be to take it out of the soup pot when it has cooked long enough to be tender, and to leave the bones to cook on for hours until all the gelatinoids are extracted.

While recording “errors,” however, it is only fair to mention those made by investigators as well as by the laymen. There has been a tendency on the part of physicians and other initiated persons, during the past few years, to decidedly decrease if not eliminate meat soup from the dietary for the reason, as stated above, that it is stimulating and not nourishing. Later investigations, however, have shown that, while the percentage of nutriment in soup is *indeed very small*, it has a special value in the diet for other reasons. Soup and meat extracts *have the power of stimulating the first flow of gastric juice which is always secreted in response to a nerve stimulation—taste, odor, hunger,*

etc.—and is called “appetite juice.” The other digestive juices are secreted as a result of chemical stimulation. Soup, then (if not contra-indicated on account of its uric acid forming bodies), is helpful in conditions of weak digestion or lack of acidity to aid in **exciting gastric secretion**. In this way the value placed upon soup by the “old-fashioned folk” **has been partially justified**. Its use between meals as “nourishment” would not rest on as secure a foundation as when it precedes a meal. The more *flavor* the soup has, the greater its value would be. For this purpose ends of wasted meat or bone prove valuable.

THE CONSUMER AND THE PURE FOOD LAW.

M. E. JAFFA.

The California pure food and drugs law has been in operation for the last four years, and the results have been gratifying, and the attention accorded it by the laity has been considerable and continuous. The attention, however, has perhaps not always been the kind that is productive of the best results. The interest in such a practical subject must be active and forceful and not passive. Before the utmost good can be accomplished by the law, the majority of the consumers must coöperate intelligently and earnestly with the state authorities in the enforcement of these acts. Both the Federal and State acts have a double purpose. They aim to safeguard the food of the consumer and protect the honest manufacturer. Some phases of the acts are therefore of more vital interest to one set of people and some to another.

A brief consideration of the main divisions of the infringements of the law will make this point clear.

There are two main classes of infringements, (1) adulteration and (2) mislabeling or misbranding. Adulterations are divided into two subdivisions, the deleterious or injurious and the fraudulent or deceptive. The first set is by far the most important as it is the *only one* that affects the health of the consumer. The presence of such adulterations in food materials is never declared on the label. Neither can they be discovered by any ordinary household test. They are, therefore, beyond the power of the housekeeper to cope with and must be intrusted entirely to a proper enforcement of the law. They usually consist of injurious preservatives, colors, etc.

The second set of adulterations, the fraudulent, is mostly pecuniary in character. Under this head are grouped all the cases where a cheap material has been added to, or mixed with, a more expensive article for the purpose of increasing the profit. From the standpoint of the consumer, some are gross frauds, while others are minor affairs and are considered, therefore, from the standpoint of the manufacturer. In the case of the adulteration of olive oil with cottonseed oil, the financial difference is an important item to the consumer as well as to the dealer. But when a cheap, though harmless, ingredient is added to spice, the adulteration is of slight pecuniary interest to the consumer, who buys perhaps one ten-cent can in several months, while to the manufacturer, who sells thousands upon thousands of cans, the additional profit, over that of the honest manufacturer, might be exceedingly large.

The second class of infringements of the pure food law, the mislabeling or misbranding may also be divided into different subdivisions, *according to whether the misrepresentations are made with a purpose*

of deceiving in regard to material used, its nutritive value, the weight, etc., or whether they are purely technical errors, such as neglect to declare a harmless color allowed by law, etc. These technical errors are being eliminated very rapidly as the manufacturers and dealers are becoming educated. The same decrease in the number of infringements is also true with reference to all injurious substances. The manufacturers and dealers have from the beginning shown a most gratifying and praiseworthy desire to conform to the law.

It would appear then that the chief interest of the consumer is divided between a group of fraudulent adulterations and some subdivisions of mislabeling; but a second investigation will show that they are often too closely connected to form two well defined classes. Almost any of the harmless adulterants are only *frauds* and are only classed as such because their presence is not declared upon the label. The law allows the purchaser to buy mixed oils, if he chooses, or artificially colored and flavored syrups; the manufacturer is allowed to provide them for those who wish to buy—*only there must be no deception*. The can of mixed oils would be differently classified under different conditions. If labeled "olive oil," it would be termed adulterated. If the words "olive oil" appeared on the label in large print and "mixed with cottonseed oil" in small print, it would be called mislabeled and transferred to another class of infringements. If, however, the wording were all in the same sized large type, the can would pass muster under the most careful inspection and appear nowhere in the list.

The responsibilities of the consumer in coöperating with the state seem to be about as follows:

1. To read the labels and acquire a knowledge of what the Government demands that the label shall tell him. Any brief article, like the present one, can only be suggestive.

2. To encourage the enterprising tradesmen to have his goods up to the standards, thereby, in turn, encouraging the honest manufacturer who puts up an honest article and guarantees it.

3. To be willing to pay a fair price for the best article, and not put a premium on dishonesty by demanding the best quality for less than the fair price.

4. To insist upon cleanliness in the handling of fresh products. There is a general sanitation law covering such case, but it would be impossible for the state to furnish adequate inspection without local aid. The housekeepers of the community, upon whom the tradesmen depend for their living, could by united efforts *set their own standards* for these establishments.

ILLEGALLY LEGAL.

There are still a number of manufacturers and dealers who are offering to the public both foods or food products, and medicine, under deceptive or fraudulent representations, who can not at present be punished. They manage to escape on a technicality and for this reason the public spirited consumers should be all the more determined to withhold their patronage and support.

No law can be made so definite and so specific as to cover every possible detail of every case that may come up, and as a result there are usually some malefactors who manage to evade or circumvent the regular law. While the practices of such people are legal in the sense that they *can not at present be prevented* or punished under the strict interpreta-

tion of the letter of the law, they are deceiving the public just as much and oftentimes more than are those people who have been and may be punished. They disobey the spirit of the law in every sense, and intentionally deceive the consumer.

The method usually employed in carrying out these deceptions is either by advertisements in newspapers or by pamphlets, leaflets or dodgers (the last a very good name for such deception) or anything that is *not* a label on the package.

The law is very definite in regard to labels, but owing to the present ruling of the Supreme Court can not take cognizance of literature handed out with the package; therefore, when a purchaser sees some very attractive name or some very convincing statement of superiority or nutritive value, etc., on a handbill, which statement *does not appear on the label of the package*, he may feel assured that there is a misrepresentation which the manufacturer *knows to be such* and which he purposely refrains from repeating on the label for fear of prosecution under the law.

All friends of the pure food and drugs act should interest themselves in this phase of the question and create a public sentiment against such practices. They should also try to interest their representatives in the legislature so as to further the passage of additional laws that will cover this kind of fraud.

ANALYTICAL WORK FOR FISCAL YEAR 1910-1911.

A summary of the analytical chemical work of the State Laboratory for the year—August 1, 1910, to August 1, 1911—is presented herewith. Special data will be published as usual in the Biennial Report of the State Board of Health. It was considered, however, that a summary of such work might prove of interest to the readers of this Bulletin, which deals with the general subject of foods.

Summary of Analytical Work State Food and Drug Laboratory, August 1, 1910, to August 1, 1911.

A. FOODS AND FOOD PRODUCTS.

Material.	Number adulterated.	Number misbranded.	Number adulterated and misbranded.	Number not in violation of California pure foods act.	Total.
Baking powder		1		4	5
Beer				1	1
Breads	5				5
Butter		2		6	8
Beverages	7	14	3	47	71
Cereals	3	1		8	12
Confectionery		8		31	39
Coffee	8			2	10
Colors	1			5	6
Condiments—					
Miscellaneous	2	31	1	25	59
Prepared mustard		3		4	7
Sweet pickles	2	20		13	35
Sour pickles		1		8	9
Catsup		13		6	19
Cream		1		2	3
Eggs	1	32	1	22	56
Extracts—flavoring	12	36	26	71	145
Fish		9		14	23
Flour	3	1		1	5
Fruit		1		11	12
Honey				8	8

**Summary of Analytical Work State Food and Drug Laboratory, August 1, 1910, to
August 1, 1911—Continued.**

Material.	Number adulter- ated.	Number mis- branded.	Number adulterated and misbranded.	Number not in violation of California pure drugs act.	Total.
Ice cream		5		30	35
Jams and jellies	8			24	32
Lard	3				3
Liquors	4	6		6	16
Meats—					
Canned				7	7
Chopped or "Hamburger"	79		1	96	176
Sausage—pork	9	2	2	13	26
Sausage—miscellaneous	2	2	2	3	9
Milk		2		9	11
Oil—olive				1	1
Pastes	1	1			2
Preservatives				1	1
Rice		11		17	28
Sago	9			3	12
Syrups—table	8	2		14	23
Syrups—soda water	1	10		2	13
Spices	18			60	75
Sugars	2	2		1	2
Vegetables		2			2
Vinegars	6	6	1	49	64
Waters		3		1	4
Total foods	189	228	37	626	1,080
Per cent	17.5	21.1	3.4	58.0	100

B. DRUGS.

Alcohol				5	5
Alum	1			2	3
Arnica, tincture		9		1	10
Benzoin, tincture		4			4
Camphorated oil	12			15	27
Camphor		12			12
Citrate of magnesia				7	7
Colic remedies, etc.		13		1	14
Cough remedies, etc.		50		8	58
Cream of tartar				4	4
Epsom salt, etc.				11	11
Green soap, tincture		2		1	3
Headache powders		86		7	93
Iodine, tincture		8			8
Jamaica ginger		14		2	16
Kidney cures		9			9
Lung remedies		8			8
Miscellaneous	7	68		15	90
Paregoric		7		1	8
Peppermint, essence	1	6			7
Sulphur	7			7	14
Sweet spirits of nitre		12			12
Witch hazel		11		3	14
Total drugs	28	319		90	437
Per cent	6.5	73.0		20.5	100

C. GENERAL SUMMARY.

Total food samples	189	228	37	626	1,080
Total drug samples	28	319		90	437
Grand total	217	547	37	716	1,517
Per cent	14.3	36.1	2.4	47.2	100

FARMERS' BULLETINS ON HUMAN FOODS.

The following bulletins can be obtained free upon application to the Secretary of Agriculture, Washington, D. C. When making application for them, it will be necessary to state that they belong to the Farmers' Bulletin Series:

- No. 34. Meats: Composition and Cooking.
- No. 83. Fish as Food.
- No. 93. Sugar as Food.
- No. 121. Beans, Peas, and other Legumes as Food.
- No. 125. Protection of Food Products from Injurious Temperature.
- No. 128. Eggs and Their Uses as Food.
- No. 131. Detection of Oleomargarine and Renovated Butter.
- No. 142. Principles of Nutrition and Nutritive Value of Food.
- No. 175. Manufacture of Unfermented Grape Juice.
- No. 182. Poultry as Food.
- No. 203. Canned Fruit, Preserves and Jellies.
- No. 249. Cereal Breakfast Foods.
- No. 252. Maple Sugar and Sirup.
- No. 281. Experiment Station Work XL.
- No. 293. Use of Fruit as Food.
- No. 298. Food Value of Corn and Corn Products.
- No. 332. Nuts and Their Uses as Food.
- No. 348. Bacteria in Milk.
- No. 359. Canning of Vegetables for the Home.
- No. 363. The Use of Milk as Food.
- No. 375. Care of Food in the Home.
- No. 389. Bread and Bread Making.
- No. 391. Economical Use of Meat in the Home.
- No. 413. The Care of Milk and Its Uses in the Home.
- No. 426. Canning Peaches on the Farm.
- No. 431. Peanut.

Some additional Farmers' Bulletins of general interest:

- No. 377. Harmfulness of Headache Mixtures.
- No. 393. Habit Forming Agents.
- No. 449. Rabies or Hydrophobia.
- No. 450. Some Facts About Malaria.
- No. 459. House Flies.
- No. 475. Ice Houses.
- No. 478. How to Prevent Typhoid Fever.

DEPARTMENT REPORTS.

REPORT OF BUREAU OF VITAL STATISTICS FOR SEPTEMBER.

GEORGE D. LESLIE, Statistician.

State Totals and Annual Rates.—The following table shows for California as a whole the birth, death, and marriage totals for the current and preceding months in comparison with those for the corresponding months of last year, as well as the annual rates per 1,000 population represented by the totals for the current and preceding months. The rates are based on an estimated midyear population of 2,488,256 for California in 1911, the estimate having been made by the Census Bureau method with slight modifications.

Birth, Death and Marriage Totals, with Annual Rates per 1,000 Population for Current and Preceding Months, for California: September.

MONTH.	MONTHLY TOTAL.		Annual rate per 1,000 population. 1911.
	1911.	1910.	
September—			
Births	2,902	2,796	14.2
Deaths	2,532	2,472	12.4
Marriages	2,446	2,223	12.0
August —			
Births	3,129	2,773	14.8
Deaths	2,577	2,549	12.2
Marriages	2,303	2,114	10.9

The birth and marriage totals for September, as for August, were much greater in 1911 than in 1910, while in both months the death totals were not far from the same each year.

County Totals.—The first table on the following page shows the monthly birth, death, and marriage totals for the principal counties of the State, the list being limited to counties having a population of at least 25,000 according to the Federal Census of 1910. Totals are also shown for San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), as well as for Los Angeles and Orange counties together.

City Totals.—The second table on the following page gives the birth and death totals for the principal freeholders' charter cities, the list including all chartered cities with a census population of at least 15,000 in 1910. Totals are given likewise for San Francisco in comparison with Oakland, Alameda, and Berkeley, the three cities adjoining one another on the east shore of San Francisco Bay, as well as for Los Angeles in comparison with neighboring chartered cities (Long Beach, Pasadena, Pomona, and Santa Monica).

Birth, Death and Marriage Totals, for Principal Counties: September.

County.	SEPTEMBER, 1911.		
	Births.	Deaths.	Marriages.
California.....	2,902	2,532	2,446
Counties of more than 25,000 population (1910):			
Alameda.....	304	244	268
Butte.....	50	39	11
Contra Costa.....	37	17	16
Fresno.....	74	66	70
Humboldt.....	35	27	34
Kern.....	41	31	28
Los Angeles.....	672	557	560
Marin.....	31	33	89
Orange.....	35	42	101
Riverside.....	33	27	36
Sacramento.....	91	81	91
San Bernardino.....	61	59	59
San Diego.....	81	63	99
San Francisco.....	541	520	431
San Joaquin.....	41	90	47
San Mateo.....	24	23	32
Santa Barbara.....	49	25	24
Santa Clara.....	105	100	82
Santa Cruz.....	27	24	19
Solano.....	31	25	17
Sonoma.....	59	29	36
Tulare.....	43	24	16
Selected groups:			
San Francisco and other bay counties.....	937	837	836
Los Angeles and Orange counties.....	707	599	661

Birth and Death Totals, for Principal Cities: September.

City.	SEPTEMBER, 1911.	
	Births	Deaths.
Freeholders' charter cities.....	1,778	1,515
Cities of more than 15,000 population (1910):		
Alameda.....	33	22
Berkeley.....	52	24
Fresno.....	31	16
Long Beach.....	22	17
Los Angeles.....	491	367
Oakland.....	191	155
Pasadena.....	25	40
Riverside.....	19	11
Sacramento.....	64	52
San Diego.....	61	51
San Francisco.....	541	520
San Jose.....	37	27
Stockton.....	20	50
Selected groups:		
San Francisco.....	541	520
Oakland, Alameda and Berkeley.....	276	201
Total, Bay cities.....	817	721
Los Angeles.....	491	367
Neighboring cities.....	58	69
Total.....	549	436

Causes of Death.—The following table shows the classification of deaths in California for the current month, in comparison with the preceding month:

Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths for Current and Preceding Month, for California: September.

Cause of Death.	Deaths:	Proportion per 1,000.	
	September	September	August.
All causes	2,532	1,000.0	1,000.0
Typhoid fever	45	17.8	12.8
Malarial fever	17	6.7	7.8
Measles	4	1.6	1.9
Scarlet fever	3	1.2	0.4
Whooping-cough	10	4.0	5.8
Diphtheria and croup	11	4.3	2.3
Influenza	3	1.2	0.4
Other epidemic diseases	10	3.9	5.4
Tuberculosis of lungs	317	125.2	127.3
Tuberculosis of other organs	56	22.1	16.7
Cancer	176	69.5	60.9
Other general diseases	124	49.0	60.1
Meningitis	27	10.7	10.1
Other diseases of nervous system	188	74.2	68.7
Diseases of circulatory system	386	152.4	157.9
Pneumonia and broncho-pneumonia	128	50.6	41.1
Other diseases of respiratory system	41	16.2	17.9
Diarrhea and enteritis, under 2 years	112	44.2	51.6
Diarrhea and enteritis, 2 years and over	27	10.7	14.4
Other diseases of digestive system	168	66.4	56.3
Bright's disease and nephritis	161	63.6	74.1
Childbirth	31	12.2	13.6
Diseases of early infancy	92	36.3	30.7
Suicide	69	27.3	26.4
Other violence	210	82.9	91.6
All other causes	116	45.8	43.8

In September there were 386 deaths, or 15.2 per cent of all, from diseases of the circulatory system, and 373, or 14.7 per cent, from various forms of tuberculosis. Heart disease thus led tuberculosis somewhat.

Other notable causes of death were: Diseases of digestive system, 307; violence, 279; diseases of nervous system, 215; cancer, 176; diseases of respiratory system, 169; Bright's disease and nephritis, 161; and epidemic diseases, 103.

The deaths from epidemic diseases were as follows: Typhoid fever, 45; malarial fever, 17; diphtheria and croup, 11; whooping-cough, 10; and all other epidemic diseases, 20.

The deaths from the four leading epidemic diseases reported for the month were distributed by counties as follows:

TYPHOID FEVER.		MALARIAL FEVER.		DIPHTHERIA AND CROUP.	
Alameda	3	Alameda	1	Alameda	3
Amador	1	Butte	2	Fresno	2
Butte	1	El Dorado	1	Los Angeles	2
Contra Costa	1	Glenn	1	Monterey	1
Fresno	1	Lassen	1	Orange	1
Imperial	1	Merced	1	San Francisco	1
Kern	2	Placer	2	Siskiyou	1
Los Angeles	8	Sacramento	1	Total	11
Orange	2	San Francisco	1		
Riverside	1	Shasta	2		
Sacramento	4	Tehama	2		
San Diego	1	Yuba	2		
San Francisco	11	Total	17		
San Joaquin	2				
Santa Clara	1				
Solano	1				
Sutter	1				
Tulare	1				
Tuolumne	2				
Total	45				

Whooping-cough.	
Butte	1
Contra Costa	1
Los Angeles	6
San Francisco	2
Total	10

Geographic Divisions.—The following table presents data for geographic divisions, including the metropolitan area, or San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), in comparison with the rural counties of Northern and Central California:

Deaths from Main Classes of Diseases, for Geographic Divisions: September.

Geographic Division.	DEATHS: SEPTEMBER.										
	All Causes	Epidemic Diseases	Tuberculosis (All Forms)	Cancer	Diseases of Nervous System	Diseases of Circulatory System	Diseases of Respiratory System	Diseases of Digestive System	Bright's Disease and Nephritis	Violence	All Other Causes
THE STATE	2,632	103	373	176	215	386	169	307	161	279	363
Northern California	399	18	29	15	34	42	18	35	14	44	50
Coast counties	128	—	14	8	17	20	7	19	6	10	26
Interior counties	173	18	15	7	17	22	11	16	8	34	25
Central California	1,429	57	188	96	111	224	110	183	97	152	216
San Francisco	520	20	63	34	26	82	50	71	40	54	81
Other bay counties	317	10	46	24	28	68	18	36	21	29	43
Coast counties	168	4	27	13	20	19	9	25	12	17	22
Interior counties	424	23	47	21	38	65	33	51	24	52	71
Southern California	804	28	161	65	70	120	41	89	50	83	97
Los Angeles	557	21	117	54	41	81	26	62	31	63	71
Other counties	247	7	44	11	29	39	15	27	19	30	26
Northern and Central California	1,728	75	212	111	145	288	128	218	111	196	266
Metropolitan area	837	30	109	62	53	140	68	107	61	83	124
Rural counties	891	45	103	49	92	128	60	111	50	113	142

Notice of Error in Report for August, 1911.—The September issue of the bulletin contained an incorrect table of morbidity. Through an inadvertence the number of deaths for scarlet fever was omitted. This threw the rest of the table figures one line too high—thus the most striking number, 192, should have been for tuberculosis instead of for bubonic plague, as it stands. The following table is correct:

Corrected Morbidity Report for August, 1911.

Disease.	Cases.	Places.
Typhoid fever.....	106	21
Malarial fever.....	50	7
Smallpox.....	19	11
Measles.....	87	6
Scarlet fever.....	69	17
Whooping-cough.....	54	8
Diphtheria and croup.....	64	23
Influenza.....	8	2
Plague.....	1	1
Tuberculosis of lungs.....	192	15
Glanders.....	2	1
Anthrax.....	1	1
Rabies.....	6	2
Pellagra.....	1	1
Syphilis.....	5	4
Gonorrhoea.....	20	6
Trachoma.....	1	1
Uncinariasis.....	1	1

Morbidity Report for September, 1911.

Disease.	Cases.	Places.
Typhoid fever.....	120	20
Malarial fever.....	89	5
Smallpox.....	19	6
Measles.....	232	11
Scarlet fever.....	69	19
Whooping-cough.....	46	3
Diphtheria and croup.....	60	23
Influenza.....	24	2
Plague.....	1	1
Tuberculosis of lungs.....	217	24
Mumps.....	30	5
Anthrax.....	3	2
Glanders.....	13	1
Chicken-pox.....	67	5
Rabies.....	4	2
Poliomyelitis.....	2	2
Gonorrhœa.....	23	8
Syphilis.....	4	2

REPORT OF FOOD AND DRUG LABORATORY FOR SEPTEMBER.

Professor M. E. JAFFA, Director.

The work of the Laboratory for the past month has been somewhat miscellaneous in character, including the analysis and examinations of ice creams, for the purpose of ascertaining whether or not samples are up to the standard requirements for fat; chopped meats and sausages, for the purpose of ascertaining the presence or absence of artificial preservatives and coloring; spices examined for purity and presence of cereal; extracts—lemon, vanilla, etc.—examined for purity and strength; eggs, examined with reference to age of sample; condiments, etc. A large number of drugs have also been examined.

No Food Inspection Decisions have been received from the U. S. Department of Agriculture during the past month, but a considerable number of Notices of Judgments have been published, a résumé of the same appearing below. Full notices may be obtained upon application to the Director of the State Laboratory, University of California, Berkeley, Cal.

The following food and drug cases were referred to district attorneys for prosecution:

PURE FOOD AND DRUG CASES REFERRED TO DISTRICT ATTORNEYS, OCTOBER 7, 1911.

Name of article.	Offense.	Manufacturer or jobber.	Accused dealer.
Sloan's Chill Remedy	Mislabeled.	Dr. E. S. Sloan, Boston, Mass.	K. J. Slaughter & Co., Folsom.
Worcestershire Sauce	Mislabeled.	J. Hill & Sons Co., Los Angeles.	J. J. Silva, Los Banos.
Mexican Relish	Mislabeled.	Pacific Preserve Co., San Francisco.	A. J. Alves & Co., Newman.
Green Chili Sauce	Adulterated.	Loeb, Fleishman & Co., Los Angeles.	J. J. Silva, Los Banos.
Cross Chorodine	Mislabeled.		H. Nakamura, Los Angeles.
Kilmer's Sure Headache Cure.	Mislabeled.	Dr. Killmer & Co., South Bend, Ind.	Vincent's Pharmacy, Pasadena.
Headache Powders	Mislabeled.		Hashizuma Bros., Los Angeles.
Headache Powders	Mislabeled.		S. Kojina, Los Angeles.
Fresh Eggs	Mislabeled.		Pappas & Ulahos, Los Angeles.
Eastern Ranch Eggs Fresh	Mislabeled.		H. K. Koga, Los Angeles.
Chopped Meat	Adulterated.	Wm. Menzel Co., Redding.	Wm. Menzel Co., Redding.
Extract of Lemon	Adulterated.	S. H. Tyler & Son., San Francisco.	(Dealer protected by guaranty from manufacturer.)
Pawnee Indian Balm	Mislabeled.	Pawnee Indian Medicine Co., San Francisco.	Economic Drug Co., San Francisco.
Gluten Meal	Adulterated.	Loma Linda Food Co., Loma Linda.	(Manufacturer assumed responsibility.)
Pure Apple Cider	Adulterated.		S. Umeda, Los Angeles.

NOTICES OF JUDGMENTS.

The following Notices of Judgment have been received at the Laboratory since the publication of the last monthly bulletin; full copies of these may be obtained by addressing the Director of the State Food and Drug Laboratory, Berkeley, Cal.

Number of case and offense charged.	Name and address of defendant or manufacturer.	Specification of offense and disposition of case
936—Adulteration and misbranding of Jamaica ginger and of flavoring extracts (peppermint and wintergreen).	Liebethal Bros. & Co., Cleveland, O.	Peppermint found to be highly dilute solutions, containing little or no oil of peppermint. Ginger contained highly dilute solution of ginger extract not over one half standard of such article. Fine, \$50 and costs.
937—Adulteration and misbranding of tomato catsup.	Pressing & Orr Co., Norwalk, Ohio.	Product found to contain yeasts, spores, bacteria, mold, etc., filthy, decomposed and putrid vegetable substance. Fine, \$25 and costs.
938—Adulteration of frozen eggs.	A. Grossenbach Co., Milwaukee, Wis.	Product was in whole or in part filthy, decomposed, and putrid, and unfit for human consumption. Fine, \$25.
939—Adulteration and misbranding of flavoring extracts (vanilla, lemon and strawberry).	Bruce & West Manufacturing Co., Cleveland, Ohio.	False and misleading statements. Lemon consisted of dilute extract of lemon artificially colored. Fine, \$50 and costs.
940—Misbranding of flour	Wall-Rogalsky Milling Company, McPherson, Kansas.	Label conveyed the impression that flour had been manufactured by Camellia Flour Co. at Pittsburg, Pa., when in truth it was manufactured by the Wall-Rogalsky Milling Co. of Kansas. Released under bond after paying costs.
941—Misbranding of a drug product—"White's Headache."	O. P. White, Rusk, Texas.	False and misleading statements. Plea of guilty. Imposed fine of \$25.
942—Misbranding of a drug product—"Ammon Phenyl."	International Chemical Co., Palisades Park, N. J.	False and misleading statements. Fine, \$25.
943—Adulteration of tomato ketchup.	Michigan Refining and Preserving Co., Menominee, Mich.	Product consisted of filthy, decomposed and putrid vegetable substance. Ordered destroyed.
944—Adulteration of shelled peanuts.	Gwaltney-Bunkley Peanut Company, Smithfield, Va.	Product was mixed with insect eaten, shrunken, dark and rancid nuts, etc., filthy, decomposed and vegetable substance. Released under bond after paying costs.
945—Adulteration of shelled peanuts.	Franklin Peanut Co., Franklin, Va.	Product consisted in part of a filthy, decomposed vegetable substance, worm-eaten peanuts, etc. Ordered destroyed. Released under bond after paying costs.
946—Adulteration of evaporated peaches.	A. B. Feeley & Son, Elizabeth City, N. C.	Product consisted in part of filthy animal and vegetable substances, beetles, worms, worm excreta, yeasts, etc. Ordered destroyed.
947—Adulteration of tomato catsup.	Product shipped from Pennsylvania to Maryland.	Consisted of filthy, decomposed tomatoes. Ordered destroyed.
948—Adulteration of prunes.	C. W. Stevens Co., Elizabeth City, N. C.	Product consisted in part of filthy, vegetable substance; worm-eaten prunes. Ordered destroyed.
949—Adulteration and misbranding of evaporated apples.	Teasdale Fruit and Nut Products Co., Rogers, Ark.	Product consisted in part of filthy, decomposed vegetable substances. Released under \$1,000 bond after paying costs.
950—Adulteration of tomato catsup.	Hyman Pickle Co., Louisville, Ky.	Product consisted of a filthy and decomposed vegetable substance. Fine, \$25 and costs.

NOTICES OF JUDGMENTS—Continued.

Number of case and offense charged.	Name and address of defendant or manufacturer.	Specification of offense and disposition of case.
951—Adulteration and misbranding of coffee.	Norton & Curd Coffee Co., Louisville, Ky.	Inferior coffee substituted. Fine, \$25 and costs.
952—Misbranding of preserves—"L. P. C." brand	Goodwin Preserve Co., Louisville, Ky.	Product contained added phosphoric acid which was not mentioned upon said labels. Fine, \$25 and costs.
953—Adulteration and misbranding of "Salad Oil."	J. Henry Smith (Peter Smith & Sons), Detroit, Mich.	Adulterated because cottonseed oil had been substituted in part for olive oil. Fine, \$5 and costs.
954—Misbranding of "Matzos."	B. C. Friedman, Philadelphia, Pa.	Misbranded because the labels indicated that the product was manufactured in Baltimore, Md., when in truth it was manufactured in Philadelphia, Pa. Released under \$300 bond after paying costs.
955—Adulteration of tomato catsup.	American Preserve Co., Philadelphia, Pa.	Consisted in part of filthy, decomposed tomatoes. Ordered destroyed by the marshal.
956—Adulteration of tomato catsup.	Philadelphia Pickling Co., Philadelphia, Pa.	Product consisted in part of filthy and decomposed tomatoes. Ordered destroyed.
957—Adulteration of shelled peanuts.	Bain Peanut Co., Suffolk, Va.	Product consisted in part of a filthy and decomposed vegetable substance, to wit, 92.5 per cent worm-eaten nuts. Ordered destroyed.
958—Adulteration of coffee	Grandy Jobbing Co., Norfolk, Va.	Product consisted in whole or in part of a filthy, decomposed or putrid vegetable substance. Ordered destroyed.
959—Misbranding of "Pineapple Oranges."	S. J. Sligh & Co., Jacksonville, Fla.	Label contained false and misleading statements. Released under \$500 bond after paying costs.
960—Adulteration of ice cream cones.	Valvona-Marchiony Company, Brooklyn, N. Y.	Contained an added deleterious ingredient, boric acid. Fine, \$10.
961—Adulteration of frozen eggs.	Chas. B. Ford Co., Chicago, Ill.	Product consisted in whole or in part of filthy, decomposed and putrid animal and vegetable substance. Ordered destroyed.
962—Misbranding of a drug product—"Dr. Higbee's Cough, Cold and Grip Powders."	Edwin W. Higbee, (German Medicine Co.), Northampton, Mass.	False and misleading statements. Plea of <i>nolo contendere</i> . Placed on file.
963—Adulteration of frozen eggs.	Ford & Howard Co., Chicago, Ill.	Product consisted of filthy, decomposed and putrid animal or vegetable substance. Ordered destroyed.
964—Adulteration of confectioners' brown glaze.	Rogers-Pyatt Shellac Co., Chicago, Ill.	Product contained an added poisonous and deleterious ingredient, to wit: methyl alcohol. Fine, \$50 and costs.
965—Misbranding of a drug product—"Smith's Quinets."	C. E. Rupert Smith, Philadelphia, Pa.	False and misleading statements. Fine, \$5.
966—Misbranding of lemon extract.	C. L. Heinle Specialty Co., Philadelphia, Pa.	Dilute extract containing less than $\frac{1}{4}$ of 1 per cent oil of lemon. Fine, \$50.
967—Misbranding and alleged adulteration of vinegar.	Leroux Cider and Vinegar Co., Toledo, Ohio.	Product, imitation. Released under bond after paying costs.
968—Misbranding of Buckhead Lithia Water.	Buckhead Springs Co., Buckhead, Va.	Label false and misleading. Ordered destroyed.
969—Adulteration and misbranding of "True Egg Substitute."	True Egg Substitute Company, Santa Monica, Cal.	Milk casein, starch and egg albumen mixed with product. Artificially colored. False and misleading statements. Released under \$500 bond after paying costs.
970—Adulteration of frozen eggs.	St. Louis, Mo.	Product filthy and decomposed. Ordered destroyed.

REPORT OF THE STATE HYGIENIC LABORATORY FOR SEPTEMBER, 1911.

WILBUR A. SAWYER, Director.

PLAGUE.

On September 20, 1911, the Director investigated, in conjunction with Dr. Geo. W. McCov of the U. S. P. H. & M. H. Service, a case of suspected plague in a man on a farm near Ripon in San Joaquin County. The symptoms and history of the case were characteristic of bubonic plague. Examination of the infected glands revealed abundant plague bacilli. The organisms from this case were grown in culture at the laboratory and showed the characteristics of plague bacilli. Examinations were made showing conclusively that the case was one of bubonic plague. The disease had been demonstrated by the U. S. P. H. & M. H. Service many months before in ground squirrels in the section of land in which the patient lived.

RABIES.

Examinations at the laboratory indicate that the epidemic of rabies is still spreading northward. The disease has now been shown to exist in Merced County.

Summary of Examinations made in the California State Hygienic Laboratory during the month of September, 1911.

Main Laboratory at Berkeley:

Condition suspected:

	Positive.	Negative.	Incon- clusive.	Total.
Anthrax	2	3	--	5
Diphtheria	9	19	--	28
Malaria	1	5	--	6
Plague	1	--	--	1
Rabies	5	5	--	10
Tuberculosis	8	21	--	29
Typhoid	6	24	1	31
Water	2	8	3	13
Miscellaneous	1	1	--	2
				<hr/> 125

Fresno Branch Laboratory;

Condition suspected:

Diphtheria	5	1	--	6
Malaria	1	--	--	1
				<hr/> 7

Los Angeles Branch Laboratory;

Condition suspected:

Diphtheria	--	4	--	4
Typhoid	--	1	--	1
Miscellaneous	--	--	1	1
				<hr/> 6

Total number of examinations138

LIST OF COUNTY HEALTH OFFICERS.

County.	Health Officer.	Address.
Alameda	Dr. C. L. McKown.	Niles
Alpine*	County Recorder Frank Smith.	Markleville
Amador	Dr. E. E. Endicott.	Jackson
Butte	Dr. L. Q. Thompson.	Gridley
Calaveras	Dr. E. W. Weirich.	Angels Camp
Colusa	Dr. C. A. Poage.	Colusa
Contra Costa	Dr. F. S. Gregory.	Pittsburg
Del Norte*	County Recorder N. G. McVay.	Crescent City
El Dorado	Dr. L. M. Leisenring.	Placerville
Fresno	Dr. W. T. Burks.	Fresno
Glenn	Dr. J. A. Randolph.	Willows
Humboldt	Dr. E. H. Bryant.	Eureka
Imperial	Dr. Virgil McCoombs.	El Centro
Inyo	Dr. I. J. Woodin.	Independence
Kern	Dr. G. M. Bumgarner.	Bakersfield
Kings	Dr. Ralph Motherol.	Hanford
Lake	Dr. W. E. Upton.	Kelseyville
Lassen	Dr. W. E. Dozier.	Susanville
Los Angeles	Dr. E. O. Sawyer.	Los Angeles
Madera	Dr. Mary R. Butin.	Madera
Marin	Dr. J. H. Kuser.	Novato
Mariposa	Dr. F. L. Wright.	Mariposa
Mendocino	Dr. J. Liftchld.	Ukiah
Merced	Dr. C. H. Castle.	Merced
Modoc	Dr. John Stille.	Alturas
Mono*	County Recorder Geo. Delury.	Bridgeport
Monterey	Dr. Garth Parker.	Salinas
Napa	Dr. E. Z. Hennessey.	Napa
Nevada	Dr. Carl P. Jones.	Grass Valley
Orange	Dr. John Wehrly.	Santa Ana
Placer	Dr. O. L. Barton.	Loomis
Plumas	Dr. F. D. Walsh.	Quincy
Riverdale	Dr. George E. Tucker.	Riverside
Sacramento	Dr. Hugh Beattie.	Elk Grove
San Benito	Dr. J. M. O'Donnell.	Hollister
San Bernardino	Dr. Phillip M. Savage.	San Bernardino
San Diego	Dr. Nathan Hunt.	San Diego
San Francisco	Dr. R. G. Brodrick.	San Francisco
San Joaquin	Dr. Wm. Friedberger.	Stockton
San Luis Obispo	Dr. H. M. Cox.	San Luis Obispo
San Mateo	Dr. W. G. Beattie.	Colma
Santa Barbara	Dr. J. C. Bainbridge.	Santa Barbara
Santa Clara	Dr. William Simpson.	San Jose
Santa Cruz		Santa Cruz
Shasta	Dr. F. Stabel.	Redding
Sierra	Dr. R. B. Davy.	Downieville
Siskiyou	Dr. F. J. McNulty.	Yreka
Solano	Dr. S. G. Bransford.	Suisun
Sonoma	Dr. S. S. Bogle.	Santa Rosa
Stanislaus	Dr. F. R. De Lappe.	Modesto
Sutter	Dr. J. McFadyen.	Yuba City
Tehama	Dr. J. S. Cameron.	Red Bluff
Trinity	Dr. D. B. Fields.	Weaverville
Tulare	Dr. M. E. Pettit.	Visalia
Tuolumne	Dr. Wm. Lyman Hood.	Sonora
Ventura	Dr. A. A. Maulhardt.	Oxnard
Yolo	Dr. W. J. Ebleins.	Woodland
Yuba	Dr. J. H. Barr.	Marysville

*This county has not been able to arrange with any physician to serve as county health officer.

LIST OF CITY HEALTH OFFICERS.

City.	Health Officer.	City.	Health Officer.
Alameda		Hollister	Dr. R. G. Curtis
Albany	Dr. Robt. Hector	Hollywood	E. O. Palmer
Alhambra	Dr. F. E. Corey	Huntington Beach	C. F. Sorenson
Alturas	Dr. John Stille	Huntington Park	Dr. W. Thompson
Alviso		Imperial	Dr. C. E. Standlee
Anaheim	Dr. J. L. Beebe	Inglewood	Dr. H. A. Putnam
Antioch	Dr. W. S. George	Jackson	F. V. Sanguinetti
Arcadia		Kennett	Dr. J. P. Sandholdt
Arcata	Dr. G. W. McKinnon	Kernville	J. W. Sumner
Arroyo Grande		King City	
Auburn	Jas. H. Breslin	Kingsburg	
Azusa	Dr. L. W. Atkinson	Lakeport	Jabez Banks
Bakersfield	S. D. Mullins	Larkspur	
Belvedere	Dr. Florence Scott	Lincoln	F. R. Elder
Benicia	Dr. W. L. McFarland	Lindsay	Dr. W. W. Tourtillot
Berkeley	Dr. J. J. Benton	Livermore	Dr. H. G. McGill
Biggs	Dr. B. Caldwell	Lodi	Dr. F. W. Colman
Bishop	Dr. J. W. Shute	Long Beach	Dr. W. H. Newman
Blue Lake	Dr. G. N. Wood	Lompoc	
Brawley	Dr. L. L. Lindsey	Lordsburg	Dr. J. E. Hubble
Burbank		Los Angeles	Dr. L. M. Powers
Burlingame		Los Banos	Dr. J. L. McClelland
Callistoga		Los Gatos	Dr. C. K. Small
Calexico	Dr. Wm. F. Smith	Loyalton	Dr. G. L. Coates
Chico	G. H. Taylor	Madera	Dr. Mary R. Butin
Chino	Dr. John W. Callnon	Maricopa	Dr. H. N. Taylor
Claremont		Martinez	Dr. E. E. Brown
Cloverdale	F. P. Conner	Marysville	Wm. Meek
Coalinga	Dr. H. S. Warren	Mayfield	Dr. F. M. Selbert
Colfax	Silas Ulery	McCloud	Dr. R. T. Legge
Colton	Dr. J. A. Champion	McKittrick	G. M. Chitwood
Colusa	Dr. C. A. Poage	Merced	Dr. C. H. Castle
Compton	J. W. Stone	Mill Valley	Capt. M. Staples
Concord	Dr. F. F. Neff	Modesto	Dr. J. J. Knowlton
Coram	Geo. H. Thomas	Montague	
Corning	Dr. W. F. Maggard	Mojave	A. Smith
Corona	Dr. W. H. Chapman	Monrovia	Dr. R. D. Adams
Coronado	Dr. Raffaele Lorini	Monterey	Edward Allen
Cottonwood	Dr. A. B. Gilliland	Morgan Hill	Dr. D. W. Watt
Covina		Mountain View	Dr. A. H. McFarlane
Crescent City		Napa	J. D. Treadway
Daly City		National City	Dr. T. F. Johnson
Davis	Dr. W. E. Bates	Nevada City	Hugh Murchie
Delano	Dr. H. Hildreth	Newman	Dr. H. V. Armistead
Dinuba	Dr. Wm. Whittington	Newport Beach	
Dorris	Dr. A. A. Atkinson	Oakdale	Elmer E. Endicott
Dixon	W. C. Rhem	Oakland	Dr. E. N. Ewer
Dunsmuir	Dr. E. J. Cornish	Ocean Side	Dr. R. S. Reid
Eagle Rock	Dr. C. H. Phinney	Ocean Park	Dr. W. M. Kendall
Elsinore	Dr. Hugh Walker	Ontario	Dr. C. S. Orr
Emeryville	Dr. A. T. Drennan	Orange	Dr. F. L. Champline
Escondido	Dr. David Crise	Orland	Dr. S. Goldman
Etna Mills	Dr. W. H. Haines	Oroville	Dr. W. F. Gates
Eureka	Dr. L. A. Wing	Oxnard	Dr. Ralph W. Avery
Exeter	Dr. A. D. McLean	Pacific Grove	E. B. Richi
Fairfield	Dr. S. G. Bransford	Palo Alto	Hubert O. Jenkins
Ferndale	Dr. C. A. Phelan	Pasadena	Dr. Stanley P. Black
Fort Bragg	Dr. L. C. Gregory	Paso Robles	B. B. Pierce
Fort Jones	Thos. Bransom	Perris	A. F. Hardy
Fortuna	Dr. Geo. S. Loveren	Petaluma	Dr. J. M. Proctor
Fowler	Dr. W. T. Crawford	Pinole	J. Chattleton
Fresno	Dr. Geo. H. Aiken	Pittsburg	Dr. F. S. Gregory
Fullerton	Dr. F. J. Gobar	Placerville	P. J. Hall
Gilroy	Dr. John A. Clark	Pleasanton	Dr. S. J. Wells
Glendale	Dr. R. E. Chase	Pomona	Dr. T. J. Wilson
Grass Valley	Paul E. Sears	Porterville	Dr. O. C. Higgins
Gridley	Dr. L. L. Thompson	Piedmont	Geo. T. Burtchael
Hanford	Dr. R. W. Musgrave	Point Arena	
Hayward	Dr. G. E. Reynolds	Potter Valley	
Healdsburg	Dr. J. W. Seawell	Randsburg	E. B. McGinnes
Hemet	Dr. A. B. Eadie	Red Bluff	Dr. G. J. Bailey
Hermosa Beach	E. McCaskey	Redding	L. D. Poole
Hercules	Dr. M. L. Fernandez	Redlands	Dr. H. Forline
Hillsborough		Redondo Beach	Dr. D. R. Hancock

City.	Health Officer.	City.	Health Officer.
Redwood City-----	Dr. J. L. Ross	Sierra Madre-----	Dr. R. H. Mackerras
Richmond-----	Dr. Chas. R. Blake	Sebastopol-----	Dr. J. J. Keating
Rio Vista-----	Dr. A. J. McKinnon	Sisson-----	Dr. G. L. Gougnet
Riverside-----	Dr. Thos. R. Griffith	South Pasadena-----	Dr. C. A. Whiting
Rocklin-----	Dr. S. P. Rugg	South San Francisco-----	Dr. H. G. Plymire
Roseville-----	Dr. R. H. Ashby	Stockton-----	Dr. R. T. McGurk
Ross-----		Susanville-----	Dr. E. S. Drucks
Sacramento-----	Dr. Wm. K. Lindsay	Sulsun-----	
Saint Helena-----	G. B. Anderson	Stanton-----	
Salinas-----	S. A. McCollum	Sonoma-----	
San Anselmo-----	Dr. Chipman	Taft-----	E. G. Wood
San Bernardino-----	Dr. C. V. McConnico	Tehachapi-----	R. M. Spencer
San Diego-----	Dr. F. H. Mead	Tracy-----	Dr. J. G. Murrell
San Francisco-----	Dr. R. G. Brodrick	Tehama-----	
Sanger-----	Dr. T. F. Madden	Tropico-----	
San Jose-----	Dr. M. F. Hopkins	Tulare-----	Dr. J. B. Rosson
San Jacinto-----	Thos. Lloyd	Turlock-----	Dr. E. L. Clough
San Juan-----	Henry Drake	Ukiah-----	Dr. J. Liftchild
San Luis Obispo-----	Dr. P. L. Rookledge	Upland-----	W. C. Redman
San Rafael-----	Dr. W. F. Jones	Vacaville-----	Dr. A. P. Finan
San Mateo-----	Dr. S. G. Goodspeed	Vallejo-----	Dr. E. A. Peterson
San Leandro-----	P. C. Du Bois	Ventura-----	J. H. Hardey
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Santa Cruz-----	Dr. H. E. Piper	Watts-----	Dr. E. J. Richie
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Santa Monica-----	Dr. W. H. Parker	Whittier-----	Dr. W. H. Stokes
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Sawtelle-----	Dr. A. B. Hromadka	Yreka-----	E. W. Nolan
Selma-----	Dr. F. H. Williams	Yuba City-----	

THE CALIFORNIA STATE BOARD OF HEALTH BULLETIN IS ON FILE IN EVERY PUBLIC LIBRARY, NEWSPAPER OFFICE, HIGH SCHOOL LIBRARY, AND IN THE OFFICES OF COUNTY AND CITY HEALTH OFFICIALS. CITIZENS DESIRING COPIES OF THIS ISSUE FREE OF CHARGE SHOULD APPLY TO THE SECRETARY, SACRAMENTO.

SEWAGE DISPOSAL

CALIFORNIA STATE BOARD OF HEALTH

MONTHLY BULLETIN

Vol. 7

NOVEMBER, 1911

No. 5

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JOHN F. LEINEN, <i>Acting Director, Bureau Public Health Information</i>	Sacramento.

REGULAR MEETINGS

The meetings of the California State Board of Health are held regularly the first Saturday of each month, but the quarterly meetings required by law to be held at the Capitol of the State are ordinarily designated as January, April, July, and October.

By courtesy of the University of California the Food and Drug Laboratory and the Hygienic Laboratory are located in University buildings at Berkeley, California.

Address all general communications to the
SECRETARY, Sacramento, California.

NOVEMBER BULLETIN.

COMMENTS.

An Announcement. Owing to the constantly increasing demand for copies of the State Board of Health Bulletin, the number of persons requesting that their names be placed on the mailing list has become much larger than the number of copies that can be printed for the small appropriation available. The March (1911) number dealing with sewerage and sewage disposal is out of print. In order to supply the requests for the principal articles contained in that number, they have been reprinted with this issue, but omitted in binding all copies except those sent to the libraries of the State and to persons not on the mailing list in March, 1911. By this means four thousand bulletin-separates have been obtained for distribution among citizens applying for this special information. This incomplete copy contains the vital statistics and other reports in regular sequence, and the omitted portion will be forwarded to any one who does not have the March, 1911, number.

* * * *

The Dangers of the Sewage "Well." A very dangerous method of solving the immediate family problem of sewage disposal is unfortunately becoming prevalent in California. As communities are becoming large enough to provide themselves with town water supplies which cost less than the maintenance of individual wells, and afford the opportunity for having water piped throughout the house at a greatly less expense than individual pressure tanks can be provided for. Many of the people are abandoning their wells and connecting them with septic tanks and cesspools in order to dispose of their sewage effluent. An intercommunicating and direct system of sewage pollution of the water-bearing strata underlying many towns and residential districts is thus being established. The wells which still remain in use become an unknown factor in spreading water-borne diseases and constitute a potential source for explosive epidemics of typhoid fever or other intestinal disease.

The Ohio state regulations do not permit even a "watertight cesspool to be located within 30 feet of any well or spring, nor a leaching cesspool within 100 feet of any dwelling or 300 feet of any source of water supply." The new water-pollution law of California authorizes the State Board of Health to protect well waters from pollution, and this problem is now being studied with the purpose of making regulations toward this end.

There are many epidemics on record showing that underground communication has existed for years between a residence well and a neigh-

boring cesspool or privy vault without resulting in outbreaks of disease until a typhoid case developed in the house owning the privy vault, when the disease "germs" escaping from the body of the patient were thrown into the vault and found their way into the well-water, and thence into the intestinal tracts of the persons drinking the water. In some instances this well-water was used to wash milk cans and bottles and so carried the disease to customers of the dairyman many miles away.

An unusually clear demonstration of this potential danger from underground pollution of wells occurred toward the close of the great typhoid fever outbreak at Ithica and Cornell University in 1903. The town water supply (which was drawn without filtration from a surface stream) became polluted with the typhoid fever discharges of some patients upstream, and several thousand cases occurred among the citizens as a result. During this epidemic hundreds of persons temporarily went to a private well in one part of the city to get their water. It was not known until after a typhoid case developed in a house having a cesspool within 100 feet of this well, that the cesspool and the well had an underground communication. This fact was found out through the sudden development of fifty or sixty more cases, all among the persons who had abandoned the city water for this supposedly safe well-water, in the hope of escaping the typhoid fever. Chemical and bacteriological examination of the water proved its pollution, and through other tests and methods this particular cesspool was proved to be the source of infection.

* * * *

The Problem of the House Without a Sewer.

The house without modern plumbing, and with insufficient water supply to operate a water-carrier system of sewerage is a common type in California towns as well as in the rural districts.

Many of these houses are so situated, and have enough water to operate one or two toilets, if bath and kitchen tubs and sinks are not added. In southern California many suburban homes have all the comforts of bath, kitchen, and toilet plumbing under conditions requiring the greatest economy of water and precluding any soil-percolation of the human excreta portions of sewage. These houses connect the bath plumbing directly with loose tile laid a few inches below the surface of a small lawn. The kitchen trap is connected directly with perforated square tile (with removable top side for cleaning) leading to the loose earth of a small garden patch. The toilet is separately plumbed and connected with a cement water-tight cesspool, which has to be pumped out at intervals and the contents hauled away. By adjustment of the quantity of flush water and training the members of the family to conserve the water, a tank 6 feet by 6 feet by 6 feet or 8 feet has served an average family for a year before being pumped out. The charge for emptying a tank of the size mentioned varies from \$3.00 to \$10.00, depending on location and accessibility.

Those houses which can not profitably adopt water-carrier systems should construct with equal care dry-earth toilets or sanitary privies. The cut printed on page 130 shows the type of privy being advocated throughout the south in connection with the campaign against the hook-worm, typhoid fever, and similarly spread diseases. When earth pits are dug they should be made tight, except for a proper vent, and fly-proof. The provision of a box of dry pulverized earth for covering each deposit of bowel discharges and the use of fine toilet-paper will practically eliminate odors, and to some extent reduce the dangers of water-supply contamination and fly transmission of disease.

* * * *

Small Sewage Disposal Works. The two excellent articles reprinted in this issue of the bulletin cover the essential factors to be considered in connection with the sewage disposal problem; but they can of course only present the general subject without going into construction details. It is to be regretted that the State Board of Health is not equipped with the means for making local preliminary surveys for small towns, summer resorts and growing suburban communities, in order to supplement theoretical discussion of their sewerage needs by definite advice as to just what should be done. It is desirable (and necessary if success is to be assured) that competent sanitary engineers should draft the actual plans for final adoption and should supervise the construction of all sewerage systems, but before the bond issue is voted upon or a contract let the people should have the advantage of intelligent, disinterested, specific advice upon which to base their action. Unfortunately it does not often happen the people put money into preliminary investigations and advice along such lines. The money wasted annually by cities, towns and individuals in blindly experimenting with their sewerage systems would provide the salaries and expenses of a competent engineering division, capable of advising helpfully all the towns and citizens of the State. It is to be hoped that the next legislature will again appropriate funds for an advisory engineering division of the State Board of Health, and that the Governor will then sign the bill.

Previous numbers of this bulletin have contained suggestive drawings and estimates of the cost of constructing small sewage disposal works, but it has been found that the errors in applying these suggestions without first consulting a sanitary engineer have been so frequent and serious that it is doubtful whether anything more than general articles such as the ones published below should be circulated.

Relative to the cost of constructing a septic tank disposal system for an average family (six members or less) it may be stated that, where porous ground with a low ground-water level exists, the cost should not be over \$100 to \$150 for the tanks and necessary distribution tiling. Probably \$250 to \$1,000 will cover the costs of disposal plants for larger residences and our mountain hotels. Extracts from an excellent article on residential sewage disposal by the chief engineer of the Ohio State Board of Health have been added to Mr. Baker's article.

THE SEWAGE PROBLEM AND THE LAW.

By W. F. SNOW and E. K. MIDDLEHOFF.

California's sewage problem presents an interesting study. In 1910 61.8 per cent of the population lived in seventy cities of over 2,500 inhabitants each. Of the remaining 38.2 per cent a considerable number, namely, 153,000, or 6.4 per cent, lived in 128 towns of sufficient size to be incorporated, and a smaller number lived in villages. The number of incorporated towns has now increased to 213, and many additional unincorporated communities have been built up. It is desirable that the health of all of this urban population should be safeguarded by the installation of adequate sewerage and sewage-disposal systems. At the present time many of these cities and towns are situated on important watersheds of the State and sewer directly into rivers. Some of them are crossed by great irrigating ditches into which much of their sewage and garbage finds its way. Others sewer directly into the Pacific Ocean, or one of the salt-water bays. A few are situated on fresh water lakes. Finally, many of the smaller cities have developed in the great level valleys of the State far from any surface-water course, but only a few feet vertically above water-bearing gravels, into which both wells and cesspools have been plentifully dug by uninformed citizens.

Californians love their mountains and from May to September they fill the great canyons at the headwaters of all the rivers with populous camps of a constantly changing citizenship. The lumber and mining industries provide many other summer cities on the banks of the mountain streams.

The long, dry summer months, followed by the heavy autumnal rains that wash suddenly the accumulated debris and sewage of the creek beds into the rivers, present a problem very different from that of a state in which frequent summer storms drench the watersheds and flush the creeks. The flooding of various sections of the State by rivers overflowing their banks and levees is a frequent occurrence. The steamer traffic on the great waterways of the State—notably the San Joaquin and Sacramento rivers—is an important factor in the sewage-pollution problem. The "intake" pipe of one river community of 1,000 inhabitants is passed daily by a floating population of more than 600.

The long, dry season mentioned precludes in California the use of cisterns for rain water. Consequently, the domestic water supplies are from shallow and deep wells, springs, rivers, open ditches, and pipeline supplies from mountain watersheds, and a few lakes. Wells and the mountain watersheds supply the majority of citizens, but each of the other sources is widely utilized. There are many instances of serious pollution of water supplies in all these classes. California's population is rapidly increasing, and every effort should be made to prevent further pollution of the water supplies. The State Board of Health is exerting the extent of its authority, under the new stream-pollution law, to remove the more serious sources of pollution already existing.

There are certain factors which operate to reduce the probable danger from all these sources of water pollution. The rivers of the State are relatively low in volume and run very sluggishly during the summer, the absence of rains precluding pollution except by materials directly discharged into them. The larger streams receive so much fine silt that

a steady sedimentation goes on throughout their course through the valleys. This "muddy" condition also leads to more or less effective filtration plans for the majority of users. In winter the volume of rain and melted snow water is very great compared to the amount of pollution present. Many of the well waters contain such a high percentage of "temporary hardness" that some of the water used for drinking and cooking is boiled to "soften it," and this effectively reduces the danger from contamination, but does not eliminate all danger.

California to-day stands on the threshold of her water and sewage problem. Her promotion committees are advertising the wonderful agricultural and commercial resources of the State, and are bringing in thousands of new citizens each year. With this increased density of population will come a repetition of the pollution tragedies of the Hudson, the Ohio or the Mississippi watersheds, which were enacted at a time when science could not offer a warning. To prevent this misfortune the State law covering the pollution of water supplies was so amended by the 1911 Legislature as to give the State Board of Health the necessary authority to supervise the installation of all sewerage systems designed to discharge the final effluent in any surface or underground source of domestic water supply. The important provisions of this new law are as follows:

What constitutes stream pollution.

Section 2. It shall be unlawful to discharge or deposit, or cause or suffer to be discharged or deposited, any sewage, garbage, feculent matter, offal, refuse, filth, or any animal, mineral, or vegetable matter or substance, offensive, injurious, or dangerous to health, in any springs, streams, rivers, lakes, tributaries thereof, wells or other waters used or intended to be used for human or animal consumption or for domestic purposes; or to discharge or deposit, or cause or suffer to be discharged or deposited, any such offensive, injurious or dangerous matter or substance upon the land or place adjoining such waters so as to cause or suffer such matter or substance to flow or be emptied or drained into such waters.

It shall also be unlawful to erect, construct, excavate, or maintain, or cause to be erected, constructed, excavated, or maintained, any privy, vault, cesspool, sewer pipes or conduits, or other pipes or conduits, for the discharge of impure waters, gas, vapors, oils, acids, tar, or other matter or substance offensive, injurious, or dangerous to health, whereby any part of such matter or substance shall empty, flow, seep, drain, condense or otherwise pollute or affect any of such waters so intended for human or animal consumption or for domestic purposes; or to erect or maintain any permanent or temporary house, camp, or tent, so near to such springs, streams, rivers, lakes, tributaries, or other sources of water supply, as to cause or suffer the drainage, seepage, or flow of impure waters, or any other liquids, or the discharge or deposit therefrom, of any animal, mineral, or vegetable matter, to corrupt or pollute such waters.

It shall also be unlawful for the owner, tenant, lessee or occupant of any house-boat or boat intended for or capable of being used as a residence, house, dwelling or habitation, or for the agent of such owner, tenant, lessee or occupant to moor or anchor the same or permit the same to be moored or anchored in or on any river or stream, the waters of which are used for drinking or domestic purposes by any city, town or village within a distance of two miles above the intake or place where such city, town or village water system takes water from such river or stream; *provided, however,* that in the transportation of any such house-boat on any such river or stream nothing herein contained shall prevent the owner, agent, tenant or occupant of such house-boat from mooring or anchoring the same when necessary within the limits herein fixed and established; *provided,* such house-boat shall not remain moored or anchored within such limits for a longer period than one day.

Must obtain permit to discharge sewage in stream.

SEC. 2. Section 3 of said act is hereby amended to read as follows:

Section 3. Whenever any county, city and county, city, town, village, district, community, institution, person, firm or corporation, shall desire to deposit or discharge, or to continue to deposit or discharge into any stream, river, lake, or tributary thereof, or into any other waters used or intended to be used for human or animal consumption or for domestic purposes, or into or upon any place the surface or subterranean drainage from which may run or percolate into any such stream, river, lake, tributary or other waters, any sewage, sewage effluent, or other substance by the terms of section 2 of this act forbidden so to be deposited or discharged, may file with the State Board of Health a petition for permission so to do, together with a com-

plete and detailed plan, description and history of the existing or proposed works or system, and purification plant, showing geographical location with relation to such stream, river, lake, tributary or other waters, and a physical and bacteriological analysis of the substance or substances so to be deposited or discharged.

Penalty for failure to comply with the law.

Any county, city and county, city, town, village, district, community, institution, person, firm or corporation, who shall deposit, discharge or continue to deposit or discharge, into any stream, river, lake, or tributary thereof, or into any other waters, used or intended to be used for human or animal consumption or for domestic purposes, or into or upon any place the surface or subterranean drainage from which may run or percolate into any such stream, river, lake, tributary or other waters, any sewage, sewage effluent or other substance by the terms of section 2 of this act forbidden so to be deposited or discharged, without having an unrevoked permit so to do, as in this act provided, may be enjoined from so doing by any court of competent jurisdiction at the suit of any person or municipal corporation whose supply of water for human or animal consumption or for domestic purposes is taken from such stream, river, or other running water at a point below the place of such discharge or deposit, or from such lake, or at the suit of the State of California, or at the suit of any county, or city and county, any of the residents of which shall take water from such stream, river or other running water at a point below the place of such discharge or deposit, or from such lake or reservoir, or at the suit of the State Board of Health.

The enforcement of this law by the State Board of Health justly and with effectiveness is most difficult, but steady progress is being made. There are three distinct phases of the practical problem; (1) the large cities that have such a large volume of sewage or are so situated that disposal by broad irrigation is not available; (2) the small city which is so small or is so scattered over a large land area that its citizens can not afford the initial expense and up-keep of a modern sewerage system; (3) the country residences, summer hotels and farmhouses. The articles by Professor Hyde and Mr. Baker, published in this bulletin, are excellent summaries of the scientific principles involved in sewage disposal.

Of the total urban population mentioned above, nearly the entire number is in towns and cities already provided with some form of sewer system. Many of these are inadequate or have, like Topsy, "just growed," without any human agency directing their growth toward a final solution of the problem. Among the sewerage systems in operation in California the following types may be found:

Septic tanks—the effluent being used for irrigation: Bakersfield, Corona, Covina, El Centro, Eldridge, Folsom, Fresno, Hermosa Beach, Hanford, Imperial, Lemoore, Livermore, Los Banos, Merced, Orange, Oxnard, Patton, Pleasanton, Pomona, Porterville, Redondo Beach, Riverside, Santa Ana, Santa Rosa, Sawtelle, Selma, Turlock, and Whittier.

Septic tanks, the effluent being discharged directly or indirectly into streams: Auburn, Colusa, Gilroy, Larkspur Sanitary District No. 4, La Jolla, Los Gatos, Lodi, Naples, Tulare, and Ukiah.

Settling tank: Dinuba.

Electrolytic treatment: Santa Monica.

In the following cities new sewerage systems are either proposed or in course of construction: Lindsay, Rio Vista, Colfax, Saratoga, Sanitary District No. 1, Red Bluff, Placerville, and Santa Monica.

A REVIEW OF SOME AVAILABLE METHODS OF SEWAGE TREATMENT FOR CALIFORNIA.

By CHARLES GILMAN HYDE, Consulting Engineer, California State Board of Health.

PRELIMINARY CONSIDERATIONS.

Foreword.

The sewage treatment problem is by no means a simple one. The purification of domestic wastes only, offers the least difficulty; the treatment of mixed wastes (domestic, trade, and street) may occasionally present features of utmost difficulty. Each case is more or less completely a law unto itself. It is folly to suppose, as is so often done, that because town X can dispose of its sewage successfully in some certain fashion, town Y can adopt the same method with a certainty of securing equally satisfactory results. As will be shown forthwith, sewages differ widely in character and composition, not only as between towns, but in a given town as between seasons, days of the week and even hours of the day. The only rational method of attacking the sewage treatment problem for a community wherein sewers are already in operation, is to carefully determine the regimen of sewage flow by measurement and its character by analytical methods. For towns projecting sewerage and sewage disposal works comparisons must be made with other towns having quite similar conditions. There can be no question but that specially trained and experienced sanitary engineers are needed for the design of the more refined and effective works for sewage treatment. The whole subject of sewage disposal is worthy of and demands careful study.

With the exception of a comparatively few places where sewage farming or broad irrigation of sewage has been introduced, almost the only type of sewage purification works to be found in California to-day are septic tanks, so-called, fully "fifty-seven varieties" in all, differing as to shape, relative size, etc. Many of these are operating very indifferently well and some very badly indeed. The general situation shows plainly the need of expert advice to municipalities with respect to general methods and necessary efficiencies from some central advisory authority. To every student of this matter it is clear that this body should be the State Board of Health, which should be furnished with ample funds to develop and maintain a corps of trained and capable sanitary engineers. This has been done with the greatest success and efficiency in Massachusetts for more than twenty years, in Ohio for ten years, and in other states, such as New York and Pennsylvania, during shorter periods of time.

Purpose of article.

It is the purpose of the present article to outline in brief and untechnical terms some of the most available rational processes of sewage treatment adapted and adaptable to California conditions. It is especially hoped to show that there are available processes of treatment of sewage other than by the septic tank, which has been very much over-exploited in this section. Features of design and construction, being peculiarly engineering problems, will not be discussed in detail.

Character and composition of sewage.

A fundamental characteristic of sewage, and one which bears immediately upon the sewage treatment problem, is that it consists of two very

definite and distinct parts, namely, a conveying liquid and suspended solids. Sewage is the water supply of the community—except that portion which is used on lawns, gardens, etc., and which does not reach the sewers—conveying fœcal, bath, kitchen, laundry, industrial, street, and other wastes. The conveying liquid is usually rich in dissolved organic matter, most of which is readily decomposable or putrescible and extremely high in its content of bacteria. The sludge is more resistant in composition, but extremely rich in organic matter, very putrescible and high in its content of bacteria. At the usual velocities obtaining in sewers the solids are kept in suspension, but when the velocity is checked and reduced to a very slow forward motion, as in precipitation basins, septic tanks, etc., these suspended solids tend to settle from the sewage, forming a sludge, and leaving a supernatant, milky, fairly turbid liquid. In this liquid are collodial substances, on the border-line between solution and suspension, which will not settle until changed in character.

Messrs. Kinnicutt, Windslow, and Pratt have very clearly exhibited in tabular form the general character of the sewage of an American residential town as respects solid matter, as follows:

Solid matter, 200–800 parts per million.	{	Inoffensive, mineral, 50 per cent	{	In solution, 75 per cent.
				In suspension, 25 per cent
	{	Offensive, vegetable and animal, 50 per cent	{	In solution, 60 per cent.
				In suspension, 40 per cent.

All sewages are very unstable, and their composition at any time is determined not merely by the character of the initial fresh, raw product, but also by the extent of the changes which have been wrought therein, mainly by the action of bacteria but partly by chemical action. Due to these changes, which arise or set about as soon as sewage is received into the sewers, it is to be remembered that the distance and rate of travel may become important factors determining the state of a sewage when it arrives at the disposal works and defining the optimum period of storage in septic tanks, etc.

The character of a municipal sewage varies with the habits of the people as respects the use and waste of water, with climatic conditions, with the amount and character of trade and industrial wastes, with the infiltration of ground-water, etc. In some communities the wastes from a single large industry, such as a cannery, creamery, tannery, brewery, strawboard factory, wool scouring shop, dyeing and cleaning works, etc., may, during certain hours of the day, predominate over all other wastes, changing the character of the sewage very materially. It must be clear, from a consideration of the action and interaction of these principal governing factors, that the character of sewage must be very different in different communities, and in a given community at different seasons of the year, different days of the week, and even different times during the day. A recognition and determination of these differences are essential to success in a sewage treatment problem. The analytical determination of the character of sewages requires training, experience and equipment. Such work should be done by the State Board of Health for all communities—at any rate for all towns and cities except, perhaps, the largest, which may happen to be provided with their own properly equipped laboratories and trained analysts. It is a striking fact that *practically no sewage analyses* have been made in California, and virtu-

ally nothing is known with respect to the character and composition of the sewages of our municipalities or of the sanitary efficiency of our treatment works.

Disposal by dilution.

Except for those cities and towns situated upon the coast or upon great tidal bodies of water, such as San Francisco Bay, the opportunity for disposal of sewage by dilution is generally lacking in California. Few of our river systems, except perhaps the Sacramento and San Joaquin rivers, yield a sufficiently large and constant discharge to permit of disposing any considerable quantities of sewage therein without creating a nuisance. Experience elsewhere has demonstrated rather definitely that a nuisance will surely be caused if sewage is diluted with less than about twenty volumes of water, while from forty to fifty volumes may in some cases be necessary to certainly prevent a nuisance. Of course, these values refer to low flow, if not to minimum flow, conditions in streams. In the January issue of the Bulletin, Mr. Griswold has discussed the action of self-purification in streams and has presented an outline of the conditions which determine the extent and efficiency of this action. The conditions which may define the term "nuisance" in connection with river pollution are: The formation of deposits of sludge on the banks and in the beds of the streams; the production of turbidity, milkiness, oiliness and discoloration of the water; the formation of gases of decomposition, principally sulphuretted hydrogen, causing very bad odors; the formation from sludge of masses of scum which float upon the water, due to the bubbles of gas contained; the destruction of fish, etc.

But the problem of disposal by dilution is much broader than the mere question of whether, on the one hand, a nuisance will be caused or, on the other, the self-purifying power of the stream will be sufficient to maintain its sightliness and æsthetic character. Of far greater importance are the questions of adaptability to water supply and industrial purposes, the promotion and conservation of the health of residents in the vicinity, and the possibility of indulging in water sports, etc., without undue danger. The rivers of California are of priceless value to the State and its people and should not be made to serve as sewers for the removal of the wastes of an ever-increasing population.

The laws of the State of California with respect to the control of the purity of inland waters are now, thanks to the work of the legislature in its last regular session, quite satisfactory. There are still, however, many things to be accomplished, both from the standpoint of legislative action and from that of administration. It seems clear that broader powers must be given to the State Board of Health together with largely increased funds to provide the machinery for carrying on the work which demands more or less immediate attention.

With respect to the taking of water supplies from streams into which sewage or sewage effluents find their way, a careful review of the situation by sanitary engineers has led to the following fairly well-crystallized conclusions:

- (1) No surface waters receiving sewage or the effluents of sewage treatment works are suitable for water supply purposes without purification.
- (2) The discharge of crude or of partially purified effluents into such streams must at all points be well below the limit within which self-purification can readily be accomplished.
- (3) All supplies of water derived from sewage polluted streams must be purified in accordance with methods adapted to the particular conditions of the stream in question.

Required degree of sewage purification.

From the preceding discussion it will be seen that the required degree of purification, or, in other words, the efficiency of the removal of the polluting matters in sewage, must be determined in any given case from considerations of the amount and character of the sewage, the regimen of the stream, the self-purifying capacity of the stream, the utilization of the stream for water supply purposes, etc. Different methods of sewage treatment naturally yield different efficiencies, and certain methods of treatment may be modified and adjusted to yield different degrees of purification according to requirements.

METHODS OF TREATMENT.*General classification.*

The various available known methods of sewage treatment may be classed in three distinct and important groups, as follows:

(a) Those which remove more or less of the solids, especially the suspended matters, but from which the effluent is chemically unstable and capable of further decomposition and putrefactive changes. Methods in this class may be called "preliminary" or "preparatory."

(b) Those which remove a substantial proportion of the dissolved and suspended mineral and organic matter and which produce an effluent of fairly stable composition requiring only a moderate degree of further oxidation to render wholly stable. These methods may be called "final."

(c) Those which destroy the bacteria, especially the pathogenic or disease-producing bacteria, but which in themselves do not effect any material change in the physical or chemical character of the sewage. These methods may be called "disinfection" methods.

When class (b) methods are used, it has recently been customary to provide some preliminary treatment in accordance with one or more of the methods in class (a). In important cases, especially during the prevalence of epidemics of intestinal diseases, class (c) methods may be applied to supplement the work of either or both class (a) and (b) methods.

(a) "Preliminary" methods of treatment.

The various preliminary or preparatory methods of treatment in vogue to-day, named in order of their general efficiency, from the least to the greatest, in the removal of suspended matters, are as follows:

- (1) Grit removal.
- (2) Screening, coarse and fine.
- (3) Plain sedimentation.
- (4) Straining or roughing.
- (5) Chemical precipitation.
- (6) Septic tank processes { In Cameron type septic tanks.
In Imhoff type septic tanks.
- (7) Contact beds—single.

(b) "Final" methods of treatment.

The various methods of treatment which ordinarily do or may produce effluents of such a stable character as to entitle them to be classed as "final" methods are the following, named in the order of efficiency of removal of organic matter from the least to the greatest:

- (8) Contact beds—double.
- (9) Trickling, percolating or sprinkling filters.
- (10) Intermittent filtration through sand.
- (11) Broad irrigation or sewage farming.

(c) Disinfection of sewage.

The particular method of disinfection of sewage and sewage filter effluents which is in use to-day in the United States is the following:

- (12) *Hypochlorite* (bleaching powder) disinfection.

(1) *Grit removal.*

Grit chambers are designed with a view to remove from sewage the coarser suspended mineral matter which settles rapidly, due to its high specific gravity and mass, and such matters only. These materials should be found only in combined sewages which receive street wastes. In Europe the silt and other coarse materials removable by grit chambers or basins are known as "road detritus." Grit chambers are usually unnecessary in works treating domestic sewage. In the treatment of combined sewages they are of value as preliminary to disposal by dilution and as precedent to subsidence of all types, plain, coagulated, and septic.

Grit chambers should be sufficiently large to intercept the heavy mineral matter and yet so small that no significant proportion of organic matter will be deposited. The capacity should as a rule be such that a net period of storage of at least three minutes is allowed, but the forward velocity should not be less than 5 feet per minute.

In some cases where grit chambers have been constructed in California in connection with septic tanks, they have been made so large that violent septic action, accompanied with excessive scum formation, takes place in them. This is, of course, very undesirable. It is apparent that if grit chambers are needed they should be carefully proportioned and arranged in multiple units, both for purposes of cleaning and with a view to maintain a more or less definite period of subsidence notwithstanding changes in rate of sewage flow.

(2) *Screening, coarse and fine.*

The object of screening is the removal of the coarser suspended matters in sewage. The modern tendency is toward the use of constantly finer screens, mechanically operated. Screens have always been considered of value in connection with sewage pumping works and inverted syphons. More recently it has been discovered that screening may be of substantial advantage in cases where otherwise untreated sewage is disposed of by diluting in water, or where otherwise unprepared sewage is to be applied directly to a final process such as contact beds, percolating filters, intermittent sand filters or sewage farms. Screens may even be of advantage in connection with the septic process, because of the removal thereby of considerable volumes of light materials which might otherwise float on the surface and unduly increase the amount of scum.

The efficiency of the process depends entirely upon the size of mesh or openings through which the sewage is passed. With ordinary hand-cleaned bar screens from 2 to 10 per cent of suspended matter is removed; mechanically operated self-cleaning sieves may remove as much as from 20 to 25 per cent of the suspended matters. The volume of material removed by bar screens from American sewages is from 2.5 to 6.0 cubic feet per million gallons, while with mechanical sieves this quantity may be from 20 to 40 cubic feet. The amount of moisture contained in the screenings from the finer sieves is greater than in material removed by bar screens.

(3) *Plain sedimentation.*

By means of plain subsidence in properly designed basins it has been attempted at various places in America and Europe to remove from the sewage the suspended materials or sludge, which have been shown to be a

most troublesome element in sewage purification. In practice the period of storage in such tanks varies considerably. The earlier plants were constructed on what is known as the fill and draw principle, but most of the later plants are operated on what is known as the continuous flow principle. In the latter type from six to twelve hours probably represents the range in storage period for American sewages. In properly designed basins of this type from 50 to 75 per cent of the suspended matters may be removed and deposited as sludge at the bottom. The remaining 25 to 50 per cent will ordinarily not settle from the sewage in a very extended period, and therefore the prolongation of the period of storage beyond, say, twelve hours is economically inadvisable. The volume of sludge accumulating in American tanks seems to be from 4 to 6 cubic yards per million gallons of sewage treated. This process, while relieving the sewage of a substantial proportion of suspended solids, nevertheless affords in itself no method of disposal of the sludge as does, in a degree, the septic process. The sludge must be removed from the tanks at frequent intervals and must be separately treated. Under the conditions where plain subsidence would be used, it is evident that the sludge can not be disposed of in currents of water because, if this were a possibility, the crude sewage could be disposed of in the same manner without treatment.

Reviewing California conditions, the writer believes that there are but few situations where plain subsidence can be satisfactorily utilized as a process of sewage treatment. These would seem to be—

(1) In connection with disposal by dilution in tidal waters capable of receiving the settled sewage without producing a nuisance, and where the sludge can be taken to sea in vessels, as at Manchester and London, England.

(2) In connection with intermittent sand filtration and sewage farming where areas of fairly coarse material, suitable for sludge beds, are available.

(4) *Sewage straining or roughing.*

Only a few examples of roughing filters for sewage exist in this country or Europe. When provided it is with the object, of course, of removing the suspended matters by means of rapid straining. This is done either through beds of coke or through sand beds in filters constructed like the rapid sand or mechanical water filter. Coke beds have not proved successful in actual practice, especially in cold climates. Rapid sand filters produce a volume of wash water, highly charged with the organic or mineral impurities of the sewage, which may amount to from 3 to 10 per cent of the filtrate. Such wash water requires special treatment which is ordinarily very difficult and expensive. No coagulant is used in connection with such straining filters. The process is an expensive one at the best, both as respects construction and operation. The effluent from such works can be made fully equal to, if not better than, the effluent of plain sedimentation basins, from a sanitary point of view. It is believed that this is not an available process under most California conditions.

(5) *Chemical precipitation.*

The subsidence in basins of suspended solids, by the use of coagulants of various kinds, was an exceedingly popular method of sewage treatment during a period of some twenty to thirty years prior to the introduction of the so-called biological processes about twelve years ago. A *very large number of plants* was constructed in England during this

time, and a few plants were built in America. By the use of chemicals it was attempted to produce at least a clear effluent, free from suspended matters. This was quite possible, but the sludge problem was rendered even more difficult to solve, and the effluent, while clearer, was scarcely less putrescible than that resulting from plain subsidence. The amount of sludge created by this process is ordinarily fully fifty per cent greater than with plain subsidence. The efficiency of the removal of suspended matters has usually ranged from sixty to ninety-five per cent. This process is primarily available in California only under the conditions first stated above as the field of application of plain subsidence, namely, in connection with disposal by dilution in situations where the sludge can be taken to sea in vessels.

(6) *The septic process.*

(a) *Cameron type septic tanks.* The characteristic processes involved in the action of septic tanks are not at all different from those which have for a long time been relied upon in connection with the disposal of sewage in leaching cesspools, though, perhaps, without recognition and study until the development of the septic tank called attention to them and offered an explanation for the well-known fact that the sludge from domestic wastes accumulated very slowly, if at all, in such chambers. As a definite treatment, adapted to municipal sewages, the septic process dates back some sixteen years. It was then exploited by Donald Cameron of Exeter, England, who achieved remarkable success in the anaerobic (decomposition) treatment of a portion of the sewage of that city. In his experimental tanks the sludge accumulated very slowly and was so thoroughly changed in composition, due to the long continued action of the bacteria (and other organisms), that it became like humus, and in one year amounted to perhaps one fifth, only, of the solids deposited in the tank. The effluent contained about seventy per cent of the organic matter in the raw sewage. These results were so remarkable as to attract the widest attention, and similar experiments were inaugurated in many different places with corresponding success. On the basis of these studies, the septic process was adopted for the treatment of municipal sewage with almost hysterical enthusiasm, not only in England, but on the continent of Europe and in America. In America, especially, the septic tank wave rolled from the Atlantic to the Pacific seaboards, leaving in its wake a huge number and variety of septic tanks. Some of these, well designed and adapted to local conditions, have achieved all that could reasonably be expected of them, but many others have absolutely failed to perform the work which early experiments would indicate as possible. Failures have been due to a variety of causes, perhaps more than any others to ill adaptation to the specific conditions met with in specific cases, and to a general ignorance of the true principles involved in anaerobic sewage treatment. That the process during the past ten years has been over-exploited and that its general efficiency has been greatly exaggerated are apparent to-day, when, in view of many failures, an actual distrust of the process has been brought about. The statement has been widely circulated among laymen that the effluent of septic tanks is quite suitable for drinking purposes, all of the impurities of the sewage being removed thereby. During the past few years the writer has received many inquiries regarding the truth of this statement.

The septic tank process is primarily aimed at the removal of sludge. It is by no means a final process, inasmuch as the effluent is almost invariably somewhat turbid, always extremely putrescible and rich in unstable dissolved organic matter.

A review of the principles and results of operation of the septic tank of the Cameron type would appear to justify the following more important conclusions:

(1) The average removal of suspended solids from the raw sewage by the most successful tanks may vary between thirty-five and eighty-five per cent, averaging perhaps fifty to sixty per cent. At times of active gas formation the septic effluent may contain a larger amount of suspended matter than the entering sewage. As the sludge accumulates in the tank the condition of the effluent, as respects turbidity and suspended matter, is apt to gradually become less satisfactory.

(2) In some tanks the gassification and liquefaction of sludge almost keeps pace with the rate of accumulation, so that a period of several years may elapse between enforced cleanings. In many other cases the tanks require frequent cleaning, say from two to twelve times per year. The volume of sludge digested, i. e., liquefied and gassified, would seem to ordinarily vary between ten and sixty per cent. The average value is certainly not over forty per cent. Septic sludge is normally less offensive than the sludge from plain sedimentation or chemical precipitation tanks.

(3) The period of storage in septic tanks must be carefully adjusted to conditions. Weak sewages seem to require a shorter storage period than strong sewages. Moreover, the condition of the sewage, whether fresh or comparatively stale when delivered to the tank, is a controlling factor. The gross capacities of the tanks which have been apparently well designed and which have operated with more or less success have been equivalent to from eight to forty-eight hours of sewage flow. As a rule, the period should not be greater than twenty-four hours nor less than twelve hours, except possibly with weak or stale sewages. Multiple units are very desirable in order that the storage period may be controlled to give optimum results.

(4) As compared with fresh settled sewage the septic effluent, especially that resulting from a too-long storage in the tank, is probably more difficult to oxidize in final processes of sewage treatment, such as the trickling filter, contact bed, intermittent sand filter or sewage farm.

(5) The septic process does not seem to afford an efficient means of destruction of pathogenic bacteria. Recent investigations would seem to permit of the conclusion that septic effluents are only less dangerous than crude sewage to the extent of the efficiency of removal of organic matter.

(6) The climatic conditions in California are especially favorable to the septic process and, in fact, to all biological processes of sewage treatment.

It must be recognized that the septic tank, like other engineering works of this nature, can not be a standardized apparatus. It is one which must be carefully proportioned, designed and adapted to the governing conditions of each case. Probably special consideration must be given to details of design in those sections of the State where very high summer temperatures prevail. Matters of design are beyond the scope of this paper.

Federal patents on the septic tank process have been granted to the Cameron Septic Tank Company, and all cities, towns, and institutions in the United States which have constructed septic tanks have been warned of infringement and threatened with suits. The status of this litigation is so familiar to the people of California that further reference to this subject is considered unnecessary here.*

(b) *Imhoff type tanks.* In recent years very many investigations and experiments, looking to a more successful solution of the sludge problem than is offered by the septic tank, have been under way. In consequence, various schools of workers, holding different views of the problem, have developed. Some of these schools believe that successful sewage treatment is primarily a physical process involving sedimenta-

*The full details of this litigation in California have been previously published in the March, 1910, number of this Bulletin.

tion and surface contact, while others hold that the bio-chemical actions are of extreme, if not of fundamental, importance. As a matter of fact, there is truth in both points of view; and it is to be expected that in the future the relative value of sedimentation and surface contact, of bacterial action, and of the activities of larger organisms, such as worms, arachnida, etc., will become manifest.

Aside from its lack of efficiency in many cases, objections to the Cameron type septic tank have been raised on the ground that the effluent is too stale and difficult to treat by oxidation processes, that the odor is frequently obnoxious, and that the sludge is not thoroughly digested and is sometimes quite offensive, although, as stated above, not generally so offensive as that from plain and coagulated subsidence.

During the past two or three years there has been developed in the Emscher Valley, in Germany, a type of tank which seems to overcome most, if not all, of the principal objections to the Cameron type of septic tank. This process was suggested by Dr. Imhoff, and has been strongly advocated by the Emscher Drainage Board. The tank is variously known as the Emscher, Ems, Essen, and Imhoff tank.

In brief, the process consists in passing the sewage at a low velocity through comparatively shallow V-shaped tanks, or chambers, whose sides are sufficiently steep so that the deposited solids settle to the bottom of the V, where they pass through suitably arranged slots into a deep chamber below. The period of storage of the main bulk of the sewage is comparatively brief, say two to four hours. The period is so short that septic action does not become established, yet the rate of travel is sufficiently slow so that a substantial proportion of the suspended matter is deposited. The sewage may then be passed to other treatment devices or to points of discharge in watercourses, as the case may be. It will be seen that the sewage does not have a chance to become stale in the tanks nor does it come in contact with decomposing sludge.

In the lower tank, into which the sludge settles through the slots above referred to, a slow digestion takes place through septic and other action. At frequent intervals portions of the thoroughly digested sludge are drawn off from the bottom of the tank by special piping arrangements and fresher sludge takes its place. The sludge, thoroughly rotted by the action of the bacteria, worms, etc., is no longer sticky and greasy, but humus-like. Due to the downward motion of the sludge, caused by drawing off small quantities at frequent intervals, any toxins which may be produced locally by bacterial action, and which would tend to inhibit such action, are apparently distributed and diffused so that bacterial activity is maintained and the maximum amount of solids is liquefied or gassified. The gas is taken from the top of the lower tank through specially arranged pipes or openings. The sludge is either discharged upon special sludge beds of coarse material, where in favorable weather it drains quickly and soon reaches a state permitting of easy removal, or it may be buried in trenches in agricultural land.

The efficiency of this process under American conditions can only be inferred from certain experimental results. The results obtained at Philadelphia during one year of operation of experimental tanks have been very satisfactory. Tanks of this type have been recommended by Messrs. Hering and Fuller of New York City, and are about to be installed for the treatment of the sewage of Atlanta, Ga.

The California climate would undoubtedly be very favorable to this process. In general, this method of treatment promises well, and should be investigated under local conditions. In a short while considerable data for American sewages will be available. It is evident that the proportioning of these tanks, both with relation to the period of storage of the sewage to effect a deposition of the solids and of the sludge to bring about thorough digestion, is a matter of great importance and must be worked out for various climatic conditions as well as different sewages.

The septic process, as carried out either in the Cameron type or in the Emscher type of tank, but especially in the latter, has at present two distinct fields of usefulness: first, it constitutes an effective means of preparation for any final process which can be better conducted with a sewage from which the suspended solids are more or less completely removed; second, it may be employed where disposal by dilution is permissible if the source of unsightly sludge and scum is removed.

(7) *Contact beds, single.*

All of the methods or processes of treatment which have been previously discussed have been aimed primarily at the separation from the sewage of the suspended matters, from the coarsest to the very finely divided. Only secondarily have chemical changes in the liquid portion of the sewage been intentionally brought about. In contact beds, however, we have a process which not only removes or changes the character of the suspended solids but which purifies the sewage by bio-chemical action. The action is both anaerobic (liquefying and gassifying) and aerobic (oxidizing), principally the latter. The process, in its physical, chemical and biological actions, is exceedingly complex, although the works required for carrying it out are extremely simple.

Briefly stated, a contact bed comprises a water-tight basin from three to four feet in depth, filled with some hard and fairly durable granular material of a uniform size suited to the particular requirements of a given case, or with horizontal layers of slates or slabs laid about two inches apart. Contact beds must be thoroughly underdrained and the distribution of sewage over the surface must be such as to prevent local clogging.

As usually operated, the beds are filled with sewage in from one to two hours, are kept full of sewage from two to three hours, are emptied in from one to two hours, and remain empty for from four to six hours. Of course, deviations from this general regimen are frequent. The rate of operation of single contact beds is generally equivalent to not less than 600,000 gallons per acre per day, and is seldom greater than 1,000,000 gallons. The loss of head is seldom less than four feet nor more than six feet with beds of the depths stated above.

Single contact, *i. e.*, the use of a single set of contact beds, does not usually produce a stable effluent and, therefore, is to be regarded as a preliminary process in accordance with the distinction adopted for the purposes of the present discussion. The purification which may be expected from single contact, as measured by the removal of suspended solids, may vary between sixty and seventy-five per cent, and as measured by the removal of organic matter between fifty and sixty per cent.

Single contact is seldom employed as a preparatory treatment; it is occasionally employed in conjunction with septic tanks or other preparatory treatments as a final process. Such plants are in operation at

Plainfield, N. J., and Mansfield, Ohio, and are said to be giving satisfactory results. California climatic conditions are favorable to this process, and there are doubtless some circumstances under which it can be used to advantage. As a general statement, it may be said that the septic process, perhaps especially as conducted in the Emscher tank, is cheaper and gives an almost equally effective preparatory treatment, yielding a greatly improved but putrescible effluent. Although sometimes employed as a final method of treatment, as stated above, it does not appear that contact beds have a great field of usefulness for this purpose. As respects the destruction of pathogenic bacteria, it is believed that contact beds are not more efficient than other processes giving the same efficiency in the removal of organic matter.

(8) *Contact beds, double.*

Double contact implies the operation of two sets of contact beds arranged in tandem. As a rule, the material in the beds utilized for the second contact is considerably finer than in the first. The process is capable of yielding a non-putrescible effluent, low in suspended matters though somewhat discolored, and one which can be discharged without offense into very small streams. The net rate of operation, referred to the total superficial area of both sets of beds, is seldom greater than 500,000 gallons per acre per day nor less than 300,000 gallons. The process is not as flexible as to rates of operation as are certain others to be later described. A head of from six to ten feet is normally required for this process. The total efficiency, as measured by the removal of suspended solids, has been found to vary from eighty to nearly one hundred per cent; as measured by the removal of organic matter, the efficiency usually ranges between seventy and eighty-five per cent. One very unfavorable feature of contact beds is that they gradually become clogged with resistant organic and mineral matter, so that removal and cleaning of the filling material are required. This is, of course, expensive and is especially undesirable where labor costs are high.

Climatic conditions in California are favorable to this process. It is capable of treating crude sewage, especially that from which the coarser suspended matters have been removed by effective screening. As compared with intermittent sand filters or sewage farming, from the standpoint of efficiency, the process yields distinctly inferior results. As compared with percolating or trickling beds, contact beds are less compact and are more costly. They are, however, less conspicuous, the odor attending the process is less pronounced and they do not breed flies as trickling filters are reported to do. This process may have a field of usefulness in special cases under California conditions.

(9) *Trickling, percolating, or sprinkling filters or beds.*

Trickling or percolating filters have been gradually evolved through experiments conducted during the past twenty years. For ten years the process has been in practical operation and for four or five years the mode of action has been fairly well understood, and the process has been a demonstrated success under conditions to which it is adapted and where the works have been properly designed. These filters consist essentially of beds of coarse-grained, durable material resting upon some efficient system of underdrains in or on an impervious floor. If above

ground, the beds may be surrounded by walls of concrete, by open brick work or by banked-up filling material; if in excavation, the side walls may be vertical, of concrete, brick or stone, or sloped at the angle of repose of earth and paved or concreted. The size of material, the depth of bed and the rate of operation are all interdependent factors and all relate closely to the strength and character of the sewage. It is of fundamental importance that the sewage be sprinkled or deposited on the surface of the beds in thin, thoroughly aerated films. In practice, the depth of bed generally ranges between 4 and 6 feet, the size of material from $\frac{1}{8}$ of an inch or $\frac{1}{2}$ of an inch up to $1\frac{1}{4}$ inch or 4 inches, and the rate of operation from perhaps 1.0 to 2.5 million gallons per acre. The loss of head is rarely less than 8 feet, and it may be considerably more. It is to be observed that these rates of operation are far in excess of any that can be obtained with other final processes of sewage treatment, especially with intermittent sand filters and broad irrigation. Generally speaking, the best results are not secured with the application of crude sewage unless it is especially weak and has been thoroughly screened, but rather with sewages from which a substantial percentage of suspended matter has been removed by preparatory treatment.

This process is wholly one of oxidation, in which absorption, bacterial action and the activities of larger organisms all play a conspicuous part. The effluent of properly designed and operated works is non-putrescible or stable in character, and may be discharged into the smallest streams. The effluent is not clear, but contains humus-like particles which settle rapidly and which in weight are practically equivalent to the weight of solids applied to the filter. In other words, the trickling bed does not accumulate solids as does the contact bed. As measured by the reduction of organic matter, the general efficiency of the process has ranged in England between eighty and ninety-five per cent. In the United States a much lower efficiency has been obtained, both in experimental and in large municipal plants. Nevertheless, the effluent in all cases has generally been stable and thoroughly suitable, after the settlement of suspended matters, to discharge into streams. In respect to the removal of organic matter, this process shows decided superiority over the double contact process.

In California the conditions are generally ideal for this process. It should have a wide field of usefulness, wherever compact plants must be erected to operate at comparatively high rates in more or less thickly settled districts, where sufficient head is available by gravity or pumping and where land would not be available or the conditions right for broad irrigation or sewage farming.

(10) *Intermittent sand filtration.*

Intermittent sand filtration is by far the best known and most thoroughly studied process of sewage treatment in America. For more than twenty years it has been constantly under investigation by the Massachusetts State Board of Health, both in experimental plants and in municipal plants, on a large scale. Many sewage purification plants of this type are in operation in Massachusetts, Ohio, and other states where suitable materials are naturally available. The process is one of nitrification or oxidation, and seems, in a general way, to epitomize the natural purification which the soil effects of all impurities deposited in *a film thereon*. As usually carried out, areas of suitably porous soil

are selected and the top soil is removed and placed in embankments between beds, making these of a size best adapted to the rate of sewage flow. These beds are underdrained with tiles if the water-table is not naturally low. Where suitable material is not found *in situ*, the beds may be constructed of especially selected and deposited materials, but such construction, of course, increases the cost greatly. In operation, the sewage is applied in rotation rapidly to each bed until each is completely covered to a slight depth. The bed is then allowed to drain slowly and to rest for some time thereafter. Meanwhile, other beds are being dosed, drained and allowed to rest. These filters are very sensitive to long-continued overdosing and to lack of aeration, and will not prove efficient if not carefully dosed, cleaned and rested. A great deal of information is available with reference to these matters, and it is considered entirely unnecessary to refer in detail to them here.

If conducted in suitable soils at proper rates very high efficiency may be obtained with intermittent sand filters. At one plant, at least, in the United States, that at Spencer, Massachusetts, the filter attendant regularly uses the effluent as a drinking water supply. The bacterial purification should be fully 99 per cent under favorable conditions. The removal of organic matter should be fully 95 per cent. The effluent is usually of excellent appearance and free from disagreeable odors. The rate of operation varies very widely, according to the character of applied sewage, the porosity of the soil, the temperature conditions, etc. In general, the rate varies between 40,000 and 100,000 gallons per acre per day. Higher rates may be employed with effluents of efficient preparatory treatment works.

It is not probable that this method of treatment will ever find wide application in California, although here, as for other biological processes, the climate is quite ideal, even in the most elevated districts where such plants would in all likelihood be built. Where gravelly or sandy deposits are to be found and where broad irrigation can not be conveniently resorted to, as for small isolated institutions, hotels, summer resorts, camps, etc., this method of purification could be very advantageously employed. Throughout our mountainous districts are many resorts where this method of treatment could be very easily adopted, thereby protecting in an efficient manner the streams which are now being polluted.

(11) *Broad irrigation or sewage farming.*

In the process of treatment known as broad irrigation or sewage farming the sewage is utilized for the growth of crops in very much the same manner that water would be. The sewage has, however, some slight fertilizing value. In principle this method is not essentially different from intermittent sand filtration, but it is usually conducted at rates from one tenth to one twentieth as great as those employed with intermittent sand filters. It is possible to dispose of sewage by broad irrigation at rates varying from 2,000 to 10,000 gallons per acre per day, depending upon the character of the sewage, the kind of preparatory treatment which it has received and the character of the soil. As with intermittent sand filters, higher rates of dosing and better results are generally to be obtained with sewages from which the suspended matters have been in part removed by some preliminary treatment. Heavy soils are not *naturally adapted to this method of sewage treatment*, but they can be

utilized if sufficient area is provided so that the rate of application shall be suitably low. The efficiency of treatment, measured by the removal of suspended solids, organic matter and bacteria may, under favorable conditions, be very high indeed, perhaps fully as high as with intermittent sand filtration, which yields effluents of greater purity than any other method thus far discussed. In England an extended experience with broad irrigation shows that if the land is naturally unsuited to this treatment, and if the rate of application is too great or the farms improperly manipulated, high efficiencies can not be obtained. In France and Germany very satisfactory results have been obtained on the extremely large sewage farms operating on the sewage from the cities of Paris and Berlin, respectively. Few, if any, data showing the efficiency of sewage farming in the United States are available.

There can be no question but that in an arid or semi-arid district, where soil conditions are suitable and where lands are available, the disposal of sewage by irrigation is the most logical method which can be employed. It would seem to be a criminal waste to discharge sewage into streams or into the ocean when adjacent lands are suffering from lack of moisture. Moreover, the pollution of the streams whose purity would otherwise be preserved is a feature worthy of careful consideration.

In the rainy season it is specially important that sewage farming be carefully conducted, in order that the sewage shall be thoroughly purified and at the same time that the land shall not be super-saturated. It must be impressed upon the municipalities utilizing this method of sewage treatment that sanitary efficiency rather than financial success is to be primarily sought.

In California the sewage of a number of communities is being successfully treated by broad irrigation, both on municipally owned and on privately owned areas. At some places, notably Fresno, considerable competition in securing rights to the use of sewage for irrigation has developed on the part of private landholders.

(12) *Disinfection of sewage or effluents from sewage treatment works.*

During the past few years a great deal of attention has been devoted to the problem of the treatment of water and sewage to effect the removal of bacterial contamination, especially contamination by disease germs. Various sterilizing or disinfecting agents have been investigated, with the result that all have been found either too difficult or too costly to apply, with the exception of certain salts of copper and certain chlorine compounds. Of these, for most conditions, the hypochlorite of calcium (bleaching powder) has been found to be cheapest and most efficient, although sodium hypochlorite, electrolytically prepared, may be favorable in very large plants under expert supervision in localities where electric power is very cheap. Carefully conducted experiments at various places have demonstrated clearly that the great bulk of dangerous bacteria can be removed from crude sewage or effluents from sewage treatment works at a very moderate expense, especially for the latter. It is scarcely to be expected that disinfection will be found necessary for effluents from intermittent sand filters or sewage farms, where the bacterial efficiency is already very high. But where effluents from preparatory treatment or rapidly-operated final treatment works, such as *contact beds and trickling filters*, are discharged into watercourses from

which water supplies are derived, or into tidal estuaries from which shell-fish are being taken for the markets, it appears that disinfection has a distinct field of usefulness. It is apparent that disinfection is especially necessary when epidemics of intestinal, water-borne diseases prevail in any community disposing of its partially purified or crude sewage in streams utilized for water supply purposes.

SOME GOOD GENERAL REFERENCES ON THE SUBJECT SEWAGE TREATMENT.

Text-books.

- Sewage Disposal, by Kinnicutt, Winslow and Pratt, New York, 1910.
 Principles of Sewage Treatment, by Dr. Dunbar, London and Philadelphia, 1908.
 The Design, Construction and Maintenance of Sewage Disposal Works, by H. P. Raikes, London, 1908.
 The Purification of Sewage and Water, by W. J. Dibdin, London and New York, 1903.
 Recent Improvements in Methods for the Biological Treatment of Sewage, by W. J. Dibdin, London, 1907.
 Sewage and the Bacterial Purification of Sewage, by S. Rideal, London and New York, 1906.
 The Sewage Problem, by A. J. Martin, London and New York, 1905.
 The Purification of Sewage, by S. Barwise, London, 1904.

Reports.

- Annual Reports, Massachusetts State Board of Health, since 1890.
 Annual Reports, Ohio State Board of Health, since 1900.
 Report on an Investigation of Water and Sewage Purification Plants in Ohio, State Board of Health, Columbus, Ohio, 1908.
 Report on Sewage Purification at Columbus, Ohio, by G. A. Johnson, Columbus, 1905.
 Reports Royal Commission on Sewage Disposal, London, 1902-1908.

Papers.

- Contributions From the Sanitary Research Laboratory and Sewage Experiment Station of the Massachusetts Institute of Technology, Vols. I-V, 1905-1910.
 The Disinfection of Sewage and Sewage Filter Effluents, by E. B. Phelps, U. S. Geological Survey, Water Supply Paper, No. 229, 1900.
 The Disinfection of Sewage and Sewage Filter Effluents, by E. B. Phelps, Journal of the Association of Engineering Societies, Vol. XLVI, January, 1911.
 A New Method of Treating Sewage, by Dr. Imhoff, Surveyor and Municipal County Engineer, May 21, 1909.
 Some Recent Progress in Sewage Disposal, by Rudolph Hering, American Journal of Public Hygiene, Vol. XX, November, 1910.
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SEPTIC TANKS.

By N. D. BAKER, Junior Member American Society of Civil Engineers.

PURPOSE.

The septic process is used for three reasons:

1. To get the sludge or solids out of the sewage so that the liquid part of it may be disposed of by some other means. If this is to be done by broad irrigation or by filtration through sand beds it is essential that the sludge be taken out first to prevent clogging of the distributing ditches or of the filters, as the case may be. The sludge might be removed by plain sedimentation, chemical precipitation, or to some extent by screening, but this leads up to the second purpose of the septic tank; which is—
2. To destroy the sludge. In using any of the other three methods of sludge removal, the great question of sludge *disposal* remains unsolved. The sludge has been taken out but not destroyed. The properly operated septic tank removes a considerable portion of the sludge and also destroys or “digests” a considerable portion.
3. Another purpose of the septic process is to carry the sewage through

the first stages of putrefaction, and to render it less likely to create a nuisance when discharged into streams or other bodies of water or on land. It has been estimated that a stream will receive twice as much septic sewage as it will take raw sewage before the point of pollution is reached which will cause a nuisance.

THEORY OF A SEPTIC TANK.

The septic process differs from others in that here the organic matter in the solids is broken down to simpler substances by the putrefactive or liquefying bacteria. These low forms of vegetable life work best in absence of air, and they use up the dissolved oxygen in the sewage so that the action, if complete, would give an effluent which would contain *no* dissolved oxygen. After these (anaerobic) bacteria have done their work, the sewage needs to have oxygen introduced so that the (aerobic) oxygen-using bacteria may perform their work of oxidization. It is by the activity of these aerobic or nitrifying bacteria that the products of anaerobic action are oxidized and the resulting condition of the sewage rendered stable, *i. e.*, incapable of further putrefaction.

DESIGN AND OPERATION.

Probably in no other branch of engineering work is there a wider range of variation than in the design of septic tanks. The chief objects of design should be: to get a sufficiently long storage of the sewage to complete the septic action and still not have it too long; and to enforce a uniformly slow and diffused flow through the tank so that there will be no parts of it where the sewage remains stagnant. Also to properly proportion the tank so that the surface area shall be sufficient for mat formation. In some tanks series of baffles are introduced to insure uniform flow. In some of these the baffles are vertical, let down from the top and built up from the bottom, while in others the baffles extend into the tank from the sides. Experience indicates that the use of baffles elsewhere than at the extreme end of the tanks is not to be encouraged.

Size.—The size should be sufficient to hold the flow for the period of storage desired. In different designs this varies from twelve to forty-eight hours. Perhaps eighteen hours' flow is a good average to use, but the period of storage should be adapted to the condition and character of the sewage. Many of the tanks now in use are rectangular, but there have also been designs made for circular tanks in which the sewage is taken in at the center and discharged around the circumference. (Ref., Engineering Record, vol. 60, page 249.)

Area.—Heretofore this point has not been emphasized, but it is important that there be sufficient area for mat formation. This varies with the total solids in the sewage, and also directly with the number of persons connected with the system. If the area is not sufficient, as might be the case where the flow per capita is small, there will be a continued accumulation of sludge until it gets so thick that the tank has to be cleaned and started again. In tanks of this kind one of the purposes of the septic tank is defeated, for the tank only removes the sludge and does not destroy it. In tanks of good design the surface area varies from one half to one square foot or more per person. The first figure is hardly large enough.

Roofs.—The question of roofing a septic tank has aroused some dis-

cussion. On the one hand it is claimed that since it is a bacterial process and since bacteria develop and work best in the dark, a roof is necessary to shut out the light. Against this it may be said that after the "mat" is formed on the tank it shuts out the light as effectually as a roof. Again, some engineers think an air-tight roof or covering is essential to foster the anaerobic bacterial action. The same answer is applicable here as was given above; that the mat, once formed, is a seal against air as well as light. In fact, there are many successful tanks which are not tightly covered. The best argument in favor of roofs is that the wind tends to break up the mat and prevent its formation in the early stages.

Aeration.—Because the action inside the tank is essentially an anaerobic one, the inflow should be so arranged that as little air as possible is carried in with the sewage. At the outflow pipes provision ought to be made for aerating the effluent. This may be done by making it pass over weirs in thin sheets, or pass upward through vertical pipes and over the edges, falling in a circular sheet. Other devices are used—throwing the sewage through the air in a spray and pumping air through it.

WHAT SHOULD AND SHOULD NOT BE EXPECTED OF A SEPTIC TANK.

A properly designed and operated septic tank should give an effluent containing very little solid matter in suspension, and that only in finely divided particles. Unfortunately this idea is seldom realized. The effluent will still be putrescible and offensive, and may (and very likely will) cause to some extent a nuisance unless properly handled while being further purified.

The bacterial action should destroy all but the mineral ash of the sludge, and the tank ought not to have to be cleaned oftener than once in several tanks. Here again the idea is frequently far from realized. Tanks cleaned every month can certainly not be considered successful.

The mat forms on the surface after a week or more and becomes thicker until the tank reaches a condition of equilibrium. The mat is usually 12 to 18 inches thick at this time, although one case was called to my attention where it continued to grow until it occupied a large proportion of the tank and had to be removed. This was an instance of too small a surface area.

The septic process is only a *preliminary* treatment and can be regarded as nothing more. The effluent is not stable. There is little evidence to prove that pathogenic bacteria do not survive the septic process in sufficient numbers to render the effluent dangerous without further treatment; in fact, there is every reason to believe that such effluents are distinctly dangerous from the standpoint of infection with disease germs.

Limitations.—In applying the septic process of sewage disposal to industrial wastes, each particular problem must be considered by itself. It is largely a problem for the chemist to determine what the sewage contains and what effect, if any, it will have on bacterial action. Through the Santa Clara and San Joaquin valleys the cannery wastes present a special problem. Sometimes these contain large quantities of lye used for peeling fruit. It is probable that this lye would act as a disinfectant in the sewage and deter or entirely prevent septic action in the tanks. *At other places there are winery wastes and wastes from tanneries, dye*

works, pickle factories, paper mills, iron foundries, woolen mills and other establishments, each of which presents its own particular problem and must be dealt with accordingly. Very often it is more desirable to keep such wastes out of the main sewers and dispose of them independently.

Another point of note is that to lend itself readily to septic treatment, sewage should not be too dilute. In any method of treatment it is only economy to treat as small a quantity as possible, since septic treatment depends on bacterial growth in the sewage.

Wherever septic disposal is used the storm drains ought to be in a separate system from the domestic sewers. Sometimes it is desirable to let the first "run-off" from the streets after a "dry spell" go into the domestic sewers for purification treatment, for it sometimes carries considerable organic matter, but after the streets are washed clean this should no longer be done. In some cities this is provided for by connections between the storm drains and domestic sewer mains which are opened for a short time when rain begins to fall. If such practice obtains, the tanks should be especially designed and operated to meet such conditions.

TREATMENT OF SEPTIC EFFLUENT.

To complete the purification of sewage, the effluent of septic tanks must be subjected to a final process in which the nitrifying or aerobic bacteria oxidize the products of the anaerobic action.

Sometimes this can be done at a profit by using the water for irrigation. For reasons that will be apparent it ought not be used for berries and soft skinned fruits nor for vegetables, such as celery, radishes, lettuce and those that are to be eaten raw. Where space is too limited for disposal by irrigation, contact beds or sprinkling filters are sometimes made use of. The materials used are broken stone, brick, coke, cinders, etc., the idea being to have a large area exposed to the sewage. The beds are filled and drained alternately at intervals of eight to twelve hours. During the period when the filter is empty cultures of aerobes develop on the surface, oxidizing the material left there from the sewage. The purification depends on a bacterial process and the action is that of both aerobic and anaerobic forms which oxidize the organic matter and render it non-putrescible. These filters need not be expensive. They require some attention but various patent automatic devices for regulating them are in use which serve to minimize the work of running the filter as well as to remove the personal equation of the attendant.

The use of slate beds is attracting some attention. These are made up of horizontal slabs of slate held apart at the ends by stone blocks. For the slate beds it is claimed that worms develop on the slates which work over the sludge and reduce it to harmless and inoffensive humus. The slate beds, like the contact filters, are dosed and rested alternately, multiple beds being necessary for this reason. A very good account of slate beds can be found in the Engineering Record, vol. 60, page 511.

Data on Some California Septic Tanks.

Fresno.—Population (1910), 24,900. Average sewage flow 6 to 7 cubic feet per second; 4,000,000 gallons per day. Concrete tanks; eight tanks each 36 by 90 by 6½ feet. Total capacity, 1,260,000 gallons. Storage about 7 hours. Effluent used for irrigation. Area surface, 26,000 square feet, or 1 square foot per person. City

engineer, Mr. C. P. Jenson. Tank designed by Mr. Geo. L. Hoxie, formerly city engineer. The sludge has to be removed every few weeks.

Colusa.—Population (1910), 1,580. Reinforced concrete tanks; 2 units each 180 by 6 by 7½ feet. Total capacity, 50,000 gallons. Total area, 2,160 square feet, or 1.4 square foot per person. Designed and built by Mr. J. W. Kearth, city engineer.

Selma.—Population (1910), 1,750. One concrete tank, 40 by 100 by 8 feet. Capacity, 240,000 gallons. Area, 4,000 square feet, or 1.6 square feet per person. Estimated storage, 24 hours. Designed and built by Mr. Schaffer, city engineer.

Hanford.—Population (1910), 4,830. Tank designed by Dr. Musgrave, City Health Officer. Timber lined tank 65 by 24 by 7 feet. Capacity, 80,000 gallons. Area, 1,560 square feet, or .26 square foot per person. Estimated storage, 5 to 8 hours. Septic action incomplete. Effluent carries solid particles Used for irrigation.

Corning.—Small private tank owned by Hotel Maywood.

Eldridge.—Population, 1,000. Wooden tank 150 by 15 by 10 feet, covered. Capacity, 155,000 gallons. Area, 2,250 square feet, or 2¼ square feet per person. *Storage, estimated 24 hours. Effluent very clear, but rather offensive.

Willows.—Population (1910), 1,140. Settling tank of concrete, open, 33 by 10 by 10 feet, designed for sedimentation; depth of 2½ feet. Capacity, 6,200 gallons. Area, 330 square feet, or .16 square foot per person. Not designed for septic treatment. Effluent clear and free from solids. Used for 3 years, and very small sludge deposit.

Sebastopol.—Population (1910), 1,230. Timber lined tank 160 by 15 by 6 feet, covered. Capacity, 100,000 gallons. Area, 2,400 square feet, or 1.6 square foot per person. Storage, estimated 10 to 15 hours.

Santa Rosa.—Population (1910), 7,820. Roofed, unlined tank, 250 by 27 feet at surface, 8 feet deep; side slopes 1 to 1. Capacity, 300,000 gallons. Area, 6,750 square feet, or 1.1 square feet per person. Estimated storage, 4 hours. Septic action incomplete.

Bakersfield.—Population (1910), 12,700. City engineer, Mr. Buffington. Circular concrete tank designed by Mr. Buffington, 200 feet diameter, 8 feet deep. Capacity, storage, 16 hours.

Redondo Beach.—Population (1910), 2,940. City engineer, Mr. A. A. Henderson. Septic tank designed by Olmstead and Gillelen, Wright and Callender Building, Los Angeles. Tank 160 by 50 by 7½ feet; reinforced concrete arched roof. Capacity, 450,000 gallons.

Long Beach.—Population (1910), 17,800. Timber lined tank, two units, each 610 by 6 by 6 feet. Capacity, 44,000 cubic feet—330,000 gallons. Area of surface, 7,300 square feet, or .37 square foot per person.

Sawtelle, Soldiers' Home.—Total population, 3,000. Two tanks, independent, but same size and same flow. Each tank 70 by 20 by 8 feet. Capacity, each 82,500 gallons. Total capacity, 165,000 gallons. Estimated storage 6 hours. Area of surface (total for both) 2,800 square feet, or .9 square foot per person. Tanks doing good work.

Pomona.—Population (1910), 10,200. Tank 45 by 24 by 8 feet, cement lined. Capacity, 65,000 gallons. Flow estimated at 75 gallons per capita, 750,000 gallons. Estimated storage about 2 or 3 hours. Area, 1,100 square feet, or .1 square foot per person. Tank too small, and has to have mat removed frequently.

Patton State Hospital.—About 1,500 inmates. Concrete septic tank. Two units; only one in use. Each unit 116 by 20 by 7½ feet. Capacity, 131,000 gallons. Estimated storage 10 hours. Area of surface, 2,200 square feet, or 1.5 square feet per person.

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The Practical Operation of Sewage Purification Plants. John W. Alvord, Chicago.

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Septic Tank Disposal:

Engineering Record, vol. 60, pages 37, 249, 287, 580.

Journal of the Association of Engineering Societies, vol. 34, page 33.

Sewage Contact and Sprinkling Filters.

Engineering Record, vol. 60, pages 77, 212, 351.

Engineering News, vol. 62, page 196.

Slate Beds. Engineering Record, vol. 60, page 511.

Sludge Disposal:

Engineering News, vol. 62, page 251.

Municipal Engineering, vol. 37, page 20.

Septic Tank Patents:

Municipal Engineer, vol. 35, page 290.

Engineering Record, vol. 58, pages 223, 253.

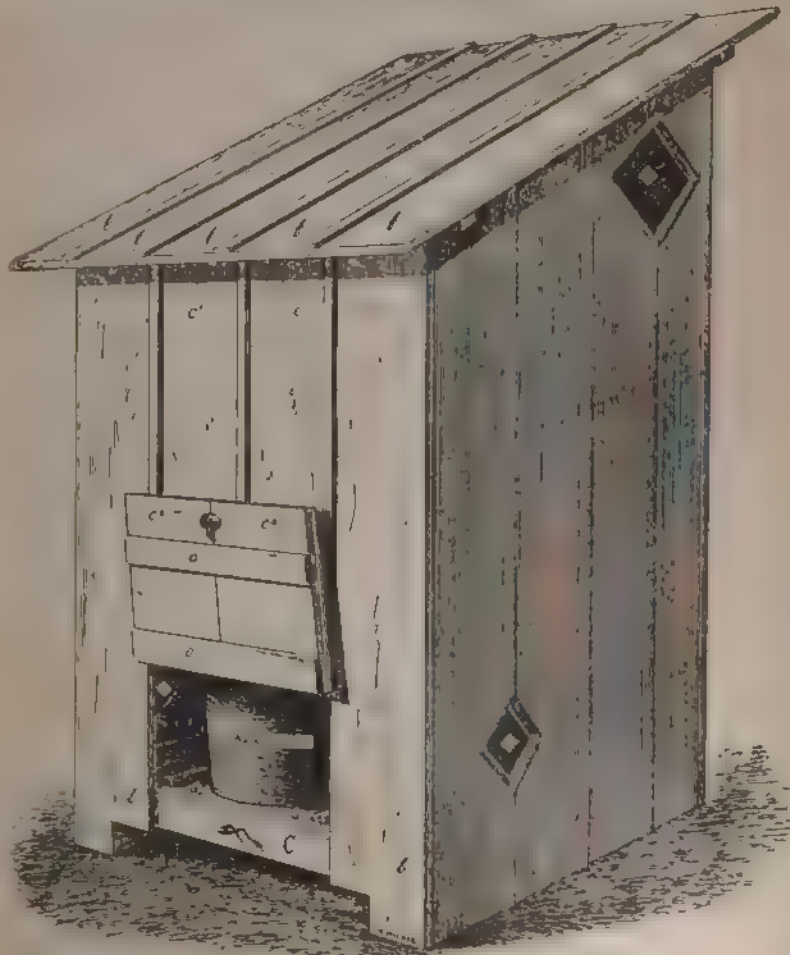
*Measured flow Oct., 1909—77,000 gallons, septic period 48 hours. Action incomplete.

Crops on Sewage Beds:

- Municipal Engineer, vol. 37, page 105.
 Engineering News, vol. 62, page 167.
 Manufacturing Wastes. Engineering News, vol. 62, page 101.
 Disinfection of Sewage. Municipal Engineer, vol. 37, page 364.
 Sewage Disposal in America. Municipal Engineer, vol. 37, page 80.
 Cost of Disposal. Municipal Engineer, vol. 37, page 106.
 National and State Control. Engineering Record, vol. 60, page 704.
 Sewage Disposal at Country Houses. Engineering Record, vol. 60, page 681.
 Standards of Purification. Engineering Record, vol. 60, page 667.
 Baltimore Sewage Disposal. Engineering Record, vol. 60, page 580.
 Stream Pollution. Engineering Record, vol. 60, pages 157, 420.
 Sewage Testing at Philadelphia. Engineering Record, vol. 60, page 71.
 Sewage Disposal in America. Transaction Amer. Soc. C. E., vol. 54, pages 147, 182.

THE PROBLEM OF THE HOUSE WITHOUT A SEWER.

The cut below illustrates the type of sanitary privy which is being advocated throughout the Southern States.



(See California State Board of Health Bulletin November, 1910 for complete description.)

RESIDENTIAL SEWAGE DISPOSAL PLANTS.

The following quotations from an excellent article on residential sewage disposal plants by Mr. R. Winthrop Pratt* have been included as illustrating the application of the data outlined by Mr. Baker as the basis for constructing successful septic tank plants for disposing of sewage.

“A plant designed according to the above mentioned principles may be described somewhat as follows: The outflowing sewage from the house is delivered into a settling basin of sufficient size and of suitable design to afford opportunity for the sedimentation of the solid matter and the rise of the grease. This basin or tank contains a constant volume which approximately should equal one or two days' flow of sewage. The inlets and outlets should be so arranged that neither the scum at the top nor the sludge at the bottom is disturbed as the sewage passes through it. The matter deposited in the bottom of the tank becomes partially reduced and passes away in the form of liquid or gas. There will be, however, a certain accumulation which must be cleaned out occasionally, probably not oftener than once a year. The tank should be ventilated through the main soil pipe of the house in the same way in which modern sanitary sewer systems are ventilated.

The clarified liquid overflowing from this tank passes into a second one adjacent thereto, called the dosing tank. Herein is placed an automatic siphon or other controlling device which holds back the flow until the sewage has reached a certain depth, at which time the entire contents of the dosing tank are discharged very rapidly. The discharge completed, the apparatus automatically prevents further outflow until the tank becomes again full. This tank serves to apply the sewage to the filter, sub-surface disposal system, or other means for final purification, to which the capacity or “dose” must bear a certain relation in order that the sewage be properly distributed.

Such distribution is essential for the reason that, if the sewage is allowed to pass on to the filter or into the “absorption system” in the same irregular way that it leaves the house, the filtering material will be constantly saturated in places and hence become clogged and foul. In other words, the filtering material must be kept clean by allowing the air to frequently penetrate it.

The disposal of the clarified sewage by open filters and by broad irrigation is identical, in principle, with the corresponding methods for city plants and need not be described here. Of course, these can be used only where ample land is available; and they are not suitable for built-up districts, but rather for isolated houses. In any case, these methods involve exposing the unpurified sewage to the air and are therefore less desirable than a sub-surface system. If, however, one wishes to construct a filter bed in a concrete chamber beneath the ground, this can be satisfactorily done, though somewhat expensive, in close proximity to residences.

The sub-surface disposal system is composed of lines of three-, four- or six-inch agricultural drain tile or vitrified pipe with open joints, laid level or nearly so, within one or two feet of the surface of the

*Copied without the illustrations from pp. 231-235 of the July, 1911, issue of the *Monthly Bulletin*, Ohio State Board of Health. Mr. R. Winthrop Pratt is Chief Engineer, Ohio State Board of Health.

ground. These are called absorption or distribution pipes. Their total length is determined primarily by the porosity of the soil in which they are placed and varies for a family of five or six, from 100 to 600 feet. In clayey soils it is necessary to thoroughly underdrain the land at a depth of 3 or 4 feet in order to render the soil dry enough to absorb the sewage, and in addition it is desirable to surround the tile with gravel, cinders or porous material. There should be, of course, no opportunity for sewage to pass directly from the absorption pipe into any of the underdrains. As mentioned above, the cubical contents of the absorption system should have a certain relation to the dosing tank in order that the sewage may be properly distributed. It is often convenient, furthermore, to divide the system into two or three portions in order that the flow may be changed from one to the other every few weeks.

There will doubtless be a certain accumulation of finely divided solid matter in the tile which may make necessary their relaying after a period of years. This, however, is a matter of small importance. The system can be placed at any convenient point and is often installed underneath the lawn or vegetable garden without in any way showing evidences of its existence, except by assisting in the growth of vegetation.

While the general principles of the design of municipal sewage purification plants apply also to residential plants, yet there are several practical differences which should be borne in mind.

In the first place the sewage from individual houses is extremely fresh and there is no opportunity for the mechanical breaking up of the larger suspended particles as is the case when sewage flows for miles in a city sewer. Then there are extreme fluctuations in the rate of flow in the case of the single house, as compared to the more regular discharge from a municipality. For instance, there is rarely any flow during the night, and the flow during the day comes in sudden rushes.

The small actual size of a house sewage tank, although it may be large from the standpoint of "hours of storage," may permit a sudden inrush of sewage to stir up the entire contents, thus carrying out some solid matter and causing the filters or the sub-surface system to clog. The above mentioned facts show the necessity of designing both tanks and finishing treatment on a more liberal per capita basis than is required with municipal plants.

Finally, residential plants are intended to be more automatic than municipal plants, and rarely receive regular attention, and they must of necessity, be located much nearer to dwellings than city plants. It is necessary, therefore, to exercise much more care in design in order that no work need be done on the plant oftener than once a year, although it should be inspected every few months. Also the design should be such that the plant will create no odors even though within a few feet of a residence.

Relative to the cost of building an efficient residential sewage disposal plant for a family of five or six, this will vary greatly according to the local cost of material and labor and the character of the ground in which it is to be placed. The usual tanks with sub-surface absorption system should be built in porous ground for \$100 to \$150; and in clay soil for \$250 to \$300. A plant including a covered sand filter may cost \$500."

DEPARTMENT REPORTS.

REPORT OF BUREAU OF VITAL STATISTICS FOR OCTOBER.

GEORGE D. LESLIE, Statistician.

State Totals and Annual Rates.—The following table shows for California as a whole the birth, death, and marriage totals for the current and preceding months in comparison with those for the corresponding months of last year, as well as the annual rates per 1,000 population represented by the totals for the current and preceding months. The rates are based on an estimated midyear population of 2,488,256 for California in 1911, the estimate having been made by the Census Bureau method with slight modifications.

Birth, Death and Marriage Totals, with Annual Rates per 1,000 Population for Current and Preceding Months, for California: October.

MONTH.	MONTHLY TOTAL.		Annual rate per 1,000 population. 1911.
	1911.	1910.	
October:			
Births	3,169	2,864	15.0
Deaths	2,590	2,683	12.3
Marriages	2,516	2,356	11.9
September:			
Births	2,902	2,792	14.2
Deaths	2,532	2,472	12.4
Marriages	2,446	2,223	12.0

The birth and marriage totals for October were much greater in 1911 than in 1910, while the October death total was considerably less in the present year than in the previous one.

County Totals.—The first table on the following page shows the monthly birth, death, and marriage totals for the principal counties of the State, the list being limited to counties having a population of at least 25,000 according to the Federal Census of 1910. Totals are also shown for San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), as well as for Los Angeles and Orange counties together.

City Totals.—The second table on the following page gives the birth and death totals for the principal freeholders' charter cities, the list including all chartered cities with a census population of at least 15,000 in 1910. Totals are given likewise for San Francisco in comparison with Oakland, Alameda, and Berkeley, the three cities adjoining one another on the east shore of San Francisco Bay, as well as for Los Angeles in comparison with neighboring chartered cities (Long Beach, Pasadena, Pomona, and Santa Monica).

Birth, Death and Marriage Totals, for Principal Counties: October.

County.	OCTOBER, 1911.		
	Births.	Deaths.	Marriages.
California	3,169	2,590	2,516
Counties of more than 25,000 population (1910):			
Alameda	338	253	233
Butte	24	28	25
Contra Costa	40	29	32
Fresno	123	76	73
Humboldt	44	30	26
Kern	48	35	32
Los Angeles	816	546	625
Marin	37	5	96
Orange	27	29	102
Riverside	36	41	34
Sacramento	111	95	98
San Bernardino	67	61	51
San Diego	117	88	74
San Francisco	588	540	472
San Joaquin	65	70	53
San Mateo	20	15	37
Santa Barbara	21	28	17
Santa Clara	103	90	75
Santa Cruz	26	28	18
Solano	16	21	14
Sonoma	58	87	37
Tulare	49	18	26
Selected groups:			
San Francisco and other bay counties	1,023	842	870
Los Angeles and Orange counties	843	575	727

Birth and Death Totals, for Principal Cities: October.

City.	OCTOBER, 1911.	
	Births	Deaths.
Freeholders' charter cities	2,064	1,616
Cities of more than 15,000 population (1910):		
Alameda	37	21
Berkeley	42	32
Fresno	48	34
Long Beach	35	19
Los Angeles	570	358
Oakland	234	158
Pasadena	49	31
Riverside	16	22
Sacramento	100	86
San Diego	88	73
San Francisco	588	540
San Jose	41	33
Stockton	23	43
Selected groups:		
San Francisco	588	540
Oakland, Alameda and Berkeley	313	211
Total, Bay cities	901	751
Los Angeles	570	358
Neighboring cities	104	71
Total	674	429

Causes of Death.—The following table shows the classification of deaths in California for the current month, in comparison with the preceding month:

Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths for Current and Preceding Month, for California: October.

Cause of Death.	Deaths:	Proportion per 1,000.	
	October	October	September
All causes	2,580	1,000.0	1,000.0
Typhoid fever	44	17.0	17.8
Malarial fever	11	4.2	6.7
Measles	2	0.8	1.6
Scarlet fever	3	1.2	1.2
Whooping-cough	13	5.0	4.0
Diphtheria and croup	10	3.8	4.3
Influenza	3	1.2	1.2
Other epidemic diseases	12	4.6	3.9
Tuberculosis of lungs	281	108.5	125.2
Tuberculosis of other organs	51	19.7	22.1
Cancer	172	66.4	69.5
Other general diseases	132	51.0	49.0
Meningitis	29	11.2	10.7
Other diseases of nervous system	206	79.5	74.2
Diseases of circulatory system	469	181.1	152.4
Pneumonia and broncho-pneumonia	156	60.2	50.6
Other diseases of respiratory system	51	19.7	16.2
Diarrhea and enteritis, under 2 years	121	46.7	44.2
Diarrhea and enteritis, 2 years and over	33	12.7	10.7
Other diseases of digestive system	139	53.7	66.4
Bright's disease and nephritis	130	50.2	63.6
Childbirth	20	7.7	12.2
Diseases of early infancy	103	39.8	39.3
Suicide	49	18.9	27.3
Other violence	211	81.5	82.9
All other causes	139	53.7	45.8

In October there were 469 deaths, or 18.1 per cent of all, from diseases of the circulatory system, and 332, or 12.8 per cent, from various forms of tuberculosis. Heart disease thus led tuberculosis greatly.

Other notable causes of death were: Diseases of the digestive system, 293; violence, 260; diseases of nervous system, 235; diseases of respiratory system, 207; cancer, 172; Bright's disease and nephritis, 130, and epidemic diseases, 98.

The deaths from epidemic diseases were as follows: Typhoid fever, 44; whooping-cough, 13; malarial fever, 11; diphtheria and croup, 10; and all other epidemic diseases, 20.

The deaths from the four leading epidemic diseases reported for the month were distributed by counties as follows:

TYPHOID FEVER.		WHOOPING-COUGH.		MALARIAL FEVER.	
Alameda	5	Alameda	1	Alameda	1
Colusa	1	Los Angeles	1	Kings	1
Fresno	1	Merced	1	Los Angeles	1
Glenn	1	Sacramento	1	Placer	1
Imperial	1	San Bernardino	1	Sacramento	1
Kings	1	San Francisco	2	San Francisco	1
Los Angeles	6	San Mateo	1	San Joaquin	1
Mendocino	1	Ventura	5	Siskiyou	1
Sacramento	3			Sonoma	1
San Bernardino	2	Total	13	Tuolumne	1
San Diego	2			Yolo	1
San Francisco	8				
San Joaquin	2	DIPHTHERIA AND CROUP.		Total	11
San Luis Obispo	1	Alameda	2		
Santa Barbara	1	Contra Costa	1		
Sonoma	3	Fresno	1		
Sutter	1	Los Angeles	2		
Tulare	3	Sacramento	1		
Yuba	1	San Bernardino	2		
		San Joaquin	1		
Total	44	Total	10		

Geographic Divisions.—The following table presents data for geographic divisions, including the metropolitan area, or San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), in comparison with the rural counties of Northern and Central California:

Deaths from Main Classes of Diseases, for Geographic Divisions: October.

Geographic Division.	DEATHS: OCTOBER.										
	All Causes	Epidemic Diseases	Tuberculosis (All Forms)	Cancer	Diseases of Nervous System	Diseases of Circulatory System	Diseases of Respiratory System	Diseases of Digestive System	Bright's Disease and Nephritis	Violence	All Other Causes
THE STATE	2,590	98	332	172	235	469	207	293	130	260	394
Northern California	357	15	43	22	38	63	13	35	17	54	57
Coast counties	194	5	24	13	28	35	5	18	11	24	31
Interior counties	163	10	19	9	10	28	8	17	6	30	26
Central California	1,410	54	161	86	118	266	146	165	67	142	205
San Francisco	540	14	61	33	40	102	55	77	23	51	84
Other bay counties	302	14	31	21	23	53	39	31	17	29	44
Coast counties	174	3	20	16	15	39	13	14	12	19	23
Interior counties	394	23	49	16	40	72	39	43	15	43	54
Southern California	823	29	128	64	79	140	48	93	46	64	132
Los Angeles	546	13	93	44	43	98	38	63	32	42	80
Other counties	277	16	35	20	36	42	10	30	14	22	52
Northern and Central California	1,767	69	204	108	156	329	159	200	84	196	262
Metropolitan area	842	28	92	54	63	155	94	108	40	80	128
Rural counties	925	41	112	54	93	174	65	92	44	116	134

Morbidity Report for October, 1911.

Disease.	Cases.	Places.
Typhoid fever	196	30
Malarial fever	124	9
Smallpox	11	7
Measles	252	16
Scarlet fever	153	49
Whooping-cough	96	12
Diphtheria and croup	105	30
Influenza	42	4
Mumps	79	6
Tuberculosis of lungs	356	30
Glanders	5	1
Leprosy	1	1
Rabies	1	1
Poliomyelitis	1	1
Gonorrhœa	33	10
Syphilis	3	3
Trachoma	1	1

REPORT OF THE PURE FOOD AND DRUG LABORATORY.

By PROFESSOR M. E. JAFFA, Director.

The work of the State Food and Drug Laboratory for October comprised the usual routine examinations. The following cases were referred to district attorneys:

PURE FOOD AND DRUG CASES REFERRED TO DISTRICT ATTORNEYS NOVEMBER 4, 1911.

Name of Article.	Offense.	Manufacturer or jobber.	Accused Dealer.
Greens August Flower	Mislabeled. Contains ethyl alcohol not declared on label.	L. M. Green, Woodbury, N. J.	F. W. Murray, Corona.
Wakefield's Cough Syrup	Mislabeled. Contains alcohol and morphine not declared on label.	Dr. C. Wakefield & Co., Bloomington, Ill.	Red Bluff Drug Store, Red Bluff.
Dr. Gill's Botanic Syrup	Mislabeled. Contains morphine and chloroform not declared on label.	Scott & Gilbert, San Francisco	Red Bluff Drug Store, Red Bluff.
Fresh Eggs	Mislabeled. Not fresh eggs		Simon-Levi Co., Los Angeles.
Ranch Eggs	Mislabeled. Not fresh eggs		Newberry's, Los Angeles.
Pure Cider Vinegar	Mislabeled as to manufacturers	Pacific Preserve Co., San Francisco (Guarantors).	(Dealer protected by specific guaranty).
Eggs	Adulterated. Not fresh eggs		Goddard & Burrell, Los Angeles.
Jaquequina	Mislabeled. Contains acentanilid not declare on label.	Brunswick Drug Co., Los Angeles (Guarantors).	(Dealer protected by specific guaranty).
Ballard's Horehound Syrup.	Mislabeled. Contains alcohol, morphine and chloroform not declared on the label.	Ballard Snow Liniment Co., St. Louis, Mo.	R. M. Green, Oroville.
Grove's Pepsin Coffee	Mislabeled. Contains ethyl alcohol not declared on label.	Paris Medicine Co., St. Louis, Mo.	R. M. Green, Oroville.

NOTICES OF JUDGMENTS.

The following Notices of Judgments have been received at the Laboratory since the publication of the last monthly bulletin; full copies of these may be obtained by addressing the Director of the State Food and Drug Laboratory, Berkeley, Cal.

Number of case and offense charged.	Name and address of defendant or manufacturer.	Specification of offense and disposition of case.
971—Misbranding of olives.	Vincenzo Arezzo, Raefale Arezzo and Claudio, N. Y.	Product consisted of a filthy, decomposed, and putrid animal or vegetable substance. Fine, \$50.
972—Misbranding of a food product—"Crown Glossine."	Crown Manufacturing Co., N. Y.	Contained arsenous oxide, a substance injurious to health. Fine, \$200.
973—Adulteration and misbranding of tomato paste.	Philadelphia Pickling Co., Eldora, N. Y.	Product consisted in whole or in part of a filthy and decomposed vegetable substance. Ordered destroyed.
974—Adulteration of eggs.	Frederick Produce Co., Houston, Tex.	Product consisted wholly or in part of filthy, decomposed, or putrid substance. Ordered destroyed.
975—Misbranding of "Fig-prune Cereal."	Figprune Cereal Co., San Jose, Cal.	Label false and misleading. Released under \$200 bond after paying costs.
976—Adulteration and alleged misbranding of evaporated apples.	Simpson-Mintun Fruit and Produce Co.	Product consisted of filthy, decomposed and putrid matter. Ordered destroyed.
977—Misbranding and alleged adulteration of vinegar.	Louisiana Molasses Co., New Orleans, La.	Water had been added to and substituted for said product. Released under \$250 bond after paying costs.
978—Adulteration and misbranding of evaporated apples.	F. A. Hihn Co., Santa Cruz, Cal.	Product consisted in part of filthy, decomposed and putrid animal and vegetable matter. Ordered destroyed after paying costs.
979—Adulteration and misbranding of condensed milk.	O. E. Sharpless Co., Philadelphia, Pa.	Product adulterated because a valuable constituent of the article, to wit: butter fat, had been in part abstracted. Label false. Released under \$3,300 bond, paying costs.
980—Misbranding of cheese.	District Columbia.	False and misleading statements. Released under bond after paying costs.
981—Misbranding of coffee.	Wm. B. Carhart and H. B. Carhart, N. Y.	Labeled Mocha and Java, whereas it consisted of Dutch East Indian and Bogota coffee. Fine, \$25.
982—Misbranding of drug product—"Walker's Tonic."	Walker's Tonic Co., Paducah, Ky.	Label false and misleading. Fine, \$25.
983—Adulteration and misbranding of vanilla extract.	Manhattan Importing Co., Cleveland, O.	Imitation extract of vanilla. Ordered destroyed.

REPORT OF THE STATE HYGIENIC LABORATORY FOR OCTOBER.

By WILBUR A. SAWYER, M. D., Director.
RABIES.

In the report submitted for the month of September it was shown that the present epidemic of rabies among dogs was spreading rapidly northward and that the disease had just been proved to exist in Merced County. During October rabies made its appearance in Stanislaus

County as proved by the finding of Negri bodies in a dog's brain sent from there. The precautions taken against the spread of this disease are obviously insufficient.

For some months the State Board of Health and the Director of the Laboratory have endeavored to protect Northern California and the region about San Francisco Bay from rabies, by urging and directing special activity against the disease in the northernmost counties affected. In many of the towns and most of the counties, efficient muzzling ordinances have not yet been enacted and enforced. As a result, during the past eleven months the infected area has increased from a limited region south of Tehachapi through Kern, Tulare, Kings, Fresno, Madera, and Merced counties, to Stanislaus County. Previous to this extensive epidemic the disease existed temporarily in a small area in San Joaquin County and a single case was found in Contra Costa County. It is probable that these regions will now be reinfected unless the present epidemic is curbed.

An isolated case was found in October in San Francisco. The brain of a pet dog, which had died with suggestive symptoms three weeks after being bitten by a strange dog, was sent to the laboratory. Examination proved that the disease was rabies. As far as is known this is the first appearance of rabies in San Francisco.

During October examinations at the laboratory showed the disease to be present in the following counties: San Francisco, Stanislaus, Merced, Madera, Fresno, Kings, Tulare, and Kern.

ANTHRAX.

Microscopic and cultural examinations revealed the presence of anthrax bacilli in blood and tissue from cattle dying in San Joaquin and Tulare counties.

Summary of Examinations made in the California State Hygienic Laboratory during the month of October, 1911.

Main Laboratory at Berkeley:

Condition suspected:	Positive.	Negative	Total
Anthrax	6	1	7
Diphtheria	5	25	30
Gonococcus Inf.	1	1	2
Malaria		4	4
Plague		1	1
Rabies	10	1	11
Tuberculosis	3	17	20
Typhoid	16	30	46
Water Pollution	1	1	2
Miscellaneous	2	2	4
			<hr/> 127

Central California Branch at Fresno:

Condition suspected:	Positive.	Negative.	Total.
Diphtheria	2	3	5
Tuberculosis	1		1
Typhoid	1		1
			<hr/> 7

Southern California Branch at Los Angeles:

Condition suspected:	Positive.	Negative.	Total.
Diphtheria	2	2	4
			<hr/> 4

Total number of examinations 138

LIST OF COUNTY HEALTH OFFICERS.

County	Health Officer.	Address.
Alameda	Dr. C. L. McKown	Niles
Alpine*	County Recorder Frank Smith	Markleeville
Amador	Dr. E. E. Endicott	Jackson
Butte	Dr. L. Q. Thompson	Gridley
Calaveras	Dr. E. W. Weirich	Angels Camp
Colusa	Dr. C. A. Poage	Colusa
Contra Costa	Dr. F. S. Gregory	Pittsburg
Del Norte	Dr. E. M. Fine	Crescent City
El Dorado	Dr. L. M. Leisenring	Placerville
Fresno	Dr. W. T. Burks	Fresno
Glenn	Dr. J. A. Randolph	Willows
Humboldt	Dr. E. H. Bryant	Eureka
Imperial	Dr. Virgil McCoombs	El Centro
Inyo	Dr. I. J. Woodin	Independence
Kern	Dr. G. M. Bumgarner	Bakersfield
Kings	Dr. Ralph Motherol	Hanford
Lake	Dr. W. E. Upton	Kelseyville
Lassen	Dr. W. E. Dozier	Susanville
Los Angeles	Dr. E. O. Sawyer	Los Angeles
Madera	Dr. Mary R. Butin	Madera
Marin	Dr. J. H. Kuser	Novato
Mariposa	Dr. F. L. Wright	Mariposa
Mendocino	Dr. J. Liftchild	Ukiah
Merced	Dr. C. H. Castle	Merced
Modoc	Dr. John Stile	Alturas
Mono*	County Recorder Geo. Delury	Bridgeport
Monterey	Dr. Garth Parker	Salinas
Napa	Dr. E. Z. Hennessey	Napa
Nevada	Dr. Carl P. Jones	Grass Valley
Orange	Dr. John Wehrly	Santa Ana
Placer	Dr. O. L. Barton	Loomis
Plumas	Dr. F. D. Walsh	Quincy
Riverside	Dr. George E. Tucker	Riverside
Sacramento	Dr. Hugh Beattie	Elk Grove
San Benito	Dr. J. M. O'Donnell	Hollister
San Bernardino	Dr. Phillip M. Savage	San Bernardino
San Diego	Dr. Nathan Hunt	San Diego
San Francisco	Dr. R. G. Brodrick	San Francisco
San Joaquin	Dr. Wm. Friedberger	Stockton
San Luis Obispo	Dr. H. M. Cox	San Luis Obispo
San Mateo	Dr. W. G. Beattie	Colma
Santa Barbara	Dr. J. C. Bainbridge	Santa Barbara
Santa Clara	Dr. William Simpson	San Jose
Santa Cruz		Santa Cruz
Shasta	Dr. F. Stabel	Redding
Sierra	Dr. R. B. Davy	Downieville
Siskiyou	Dr. F. J. McNulty	Yreka
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THE CALIFORNIA TUBERCULOSIS COMMISSION

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CALIFORNIA STATE BOARD OF HEALTH

MONTHLY BULLETIN

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No. 6



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REGULAR MEETINGS

The meetings of the California State Board of Health are held regularly the first Saturday of each month, but the quarterly meetings required by law to be held at the Capitol of the State are ordinarily designated as January, April, July, and October.

By courtesy of the University of California the Food and Drug Laboratory and the Hygienic Laboratory are located in University buildings at Berkeley, California.

Address all general communications to the
SECRETARY, Sacramento, California.

DECEMBER BULLETIN.

THE STATE OF CALIFORNIA VERSUS THE TUBERCLE BACILLUS.

By WILLIAM F. SNOW, M.D., Secretary, California State Board of Health.

The tubercle bacillus is at last fairly on trial in California. The case has been pending before the Court of Public Opinion since February 24, 1871, when Dr. Henry Gibbons, Sr., President of the California State Board of Health, officially made the following charge:

“It is time for the Board to commence the investigation of the prevalence of consumption in California and to ascertain to what extent climate has to do with its fatality. Doubtless a great number dying here have brought the germs of the disease with them, under the general opinion that a trip to California would prove beneficial, and without considering that it was necessary to find out what modification of climate caused by locality, was best adapted to that particular stage and character of their disease * * *.”

This statement is somewhat remarkable in that it was made in the very early days of the “germ” theory and eleven years before the identity of the tubercle bacillus was determined. Since that time the evidence in the case has been steadily accumulating. Serious complications have arisen through the implication of many “higher-ups.” It has been found that the criminal bacillus has been aided and abetted by big business interests — the milk producers, the tenement house builders, the timid physicians who fail to report the victims of the bacillus, and many other interests friendly to the chief offender. But if this were all, a jury would long ago have been secured which would have convicted the bacillus and punished those who assisted it. The underlying difficulty has been that the people are at a loss to devise a procedure to fit the case.

THE DELAYED VERDICT AND THE ELUSIVE LAITY.

The tubercle bacillus has so cunningly entrenched itself in the bodies of its victims and finds escape through such different ways, that neither science nor the sanitarian can suggest a method for its control without largely interfering with the freedom and pursuits of innocent victims. Human sympathy, as well as regard for the common liberty of all citizens, demands a very complete proof of the necessity for any restrictive measures applicable to tuberculosis patients before the public will act, but one might have expected the “higher-ups” to be dealt with more aggressively. This undoubtedly would have been the case had the laity understood the situation.

Take the single factor, for example, of the prompt reporting of all tuberculosis cases. It would seem self-evident that all intelligent action in preventing the spread of the disease must be based on information showing where the cases are, how many there are, and in what ways they may be spreading the disease among others. Yet from nineteen hundred and eleven back through all the years to eighteen hundred and seventy, *when California established a State Board of Health and*

charged it with the preservation of the public health, this information has not been made available. The first Secretary of the Board wrote as follows:*

“One great difficulty which officers of health meet everywhere is, that they rarely obtain official information of epidemic diseases, even in their own districts, until they see deaths registered against it, when it is obviously too late to adopt measures for prevention. Now, if the intelligent coöperation of the laity was secured, not only would the obstructive effects of present ignorance and apathy, to a certain extent, be got over, but by wise and active combination, we would be enabled to crush out, in their very incipency, those fearful infections which become almost uncontrollable if not checked in their onset.”

This was written forty years ago, when science was just beginning the remarkable series of discoveries which has swept away the mystery surrounding most diseases and has pointed the way for final victory over those which still resist the investigator, but an elusive laity still avoids the policy outlined in the Secretary's plea for coöperation.

Had the application of science kept pace with the discoveries of science since eighteen seventy, it is a conservative estimate to say that 200,000 Californians who have died of preventable disease would be alive and prosperous to-day.

DOMINANT IDEA OF CONSERVING LIFE NECESSARY.

During all these forty years that the public has dallied with the problem of health conservation, steadily increasing numbers of broad-visioned men and women have been enlisting for its battles. It now seems really probable that this ever-elusive laity will be caught by the dominant idea of preventing disease, and that efficient administrative measures will be put in operation.

The world moves forward in all times of progress through the instrumentality of dominant ideas. In a commonwealth these ideas may require many years for realization. Egypt has its pyramids because the ruling monarchs believed in them and had only to say the word to translate them from an idea to an actuality. Europe, because her kings were swayed by the dominant idea of war as a means to their ends, is filled with countless graves caused by the associated activities of powder and poverty. Havana is one of the cleanest cities in the world because the dominant idea of sanitation actuated the all powerful military authorities during the American occupation of Cuba. The problem of applying health and sanitation knowledge in the United States is not so simple. Here not only one man or woman, but a majority of the many must become imbued with the dominant idea of conserving life before rapid progress can be made.

MANY DISEASES CONQUERED BY BUILDING ENVIRONMENTAL DEFENSES.

It is inevitable that advances should be made at a much more rapid rate in conquering some diseases than others. Once the secret agency of the mosquito in spreading yellow fever was discovered and its life history learned, the disease became controllable without the assistance of

*Extract from an address of Dr. T. M. Logan, first Secretary of the California State Board of Health, delivered before the Committee on "A National Health Council," Philadelphia, 1872.

the people, except for their financial support or authority. Typhoid fever can, and is, being largely built out of existence by the installation of pure water supplies, proper sewerage systems, and adequate garbage disposal. Many diseases have already passed out of the ordinary experience of most people and physicians, and even of whole nations, through the development of various environmental defenses.

There still remain, however, many diseases which can only be eradicated through strengthening the inward defenses of the body and the immediate environmental defenses of each individual person. Tuberculosis is the greatest of this latter class. Only the creation of a dominant idea in the minds of all the people, that every man, woman, and child must have fresh air, wholesome food, healthful recreation, normal sleep, and interesting work within his strength, will bring final success in the battle against this disease, unless — unless science discovers some means of placing tuberculosis among the diseases in which we can fight the "germ" aggressively, as we do in diphtheria, or those against which we can produce a long-term immunity of the body as we do by vaccinating against smallpox. At the present time tuberculosis stands before us as the greatest, and in many respects the most baffling, of all our disease enemies. Yet it is also the most alluring in its promises of yielding to the next onslaught of the scientists.

CONFLICTING OPINIONS CONCERNING THE CONTROL OF TUBERCULOSIS.

The impression is very generally held that California's tuberculosis problem is solely due to the immigration of large numbers of consumptives in advanced stages of the disease. With this as their central thought many persons advocate some sort of State quarantine against tuberculosis patients, but practical measures for accomplishing this have not been outlined. Many advocate a state hospital for early cases, and are met by opposing plans for local hospitals for the advanced cases. Some want tuberculosis farms; while still others maintain that home-treatment and day or night camps constitute the best public machinery for fighting the disease. This evidence of the lack of any dominant idea is primarily responsible for the failure thus far to enlist the laity's active coöperation in any administrative scheme for the control of tuberculosis. The public is not indifferent to the arguments of the advocates of an anti-tuberculosis campaign, but as yet no comprehensive business proposition has been advanced for their consideration.

THE CALIFORNIA TUBERCULOSIS COMMISSION.

In order to place itself in a position to recommend to the legislature proper lines of action, the State Board of Health has appointed a special commission, composed of experienced workers in public health and sociology, and has accepted the coöperation of many technical experts who have been willing unofficially to devote some time to special phases of the problem. It is evident that the commission has an opportunity to prepare a report which will have far-reaching influence in shaping the future progress of health conservation in California.

SOME FACTS AND WORKING FIGURES.

Some of the facts and estimates upon which the commission will have to build its recommendations for action are as follows:

1. Approximately 5,000 deaths in California each year are caused by tuberculosis. *This means that as an annual average one person*

out of every five hundred of our population is sacrificed to this disease; or stated in another way (since approximately one seventh of all deaths are due to tuberculosis) the chances of these five thousand Californians living to a ripe old age would be improved 14 + per cent if we could eliminate this disease.

2. Thirty per cent of these 5,000 deaths are among native Californians, and a large percentage among persons who have lived in California more than ten years. The State as a whole shows an average of 8 per cent of the tuberculosis deaths to be among residents of less than one year, while southern California shows 20 per cent of its tuberculosis deaths to be among residents of less than one year.

3. The percentage of deaths is slightly higher for cities than for rural population. The great majority of deaths occur between 25 to 44 years of age. More deaths occur in February than in any other month, the smallest number occurring in October. Single men and married women show specially high percentages among the deaths. Occupations undoubtedly are an important and confusing factor, the percentage of deaths being specially high among the poorer paid wage-earning pursuits.

4. Among those victims of the disease who are married, approximately 25 per cent of the men die between the ages of 25 to 35 years and 25 per cent more between 35 to 45 years, and similarly 37 per cent of the married women die between 25 to 35 years and 25 per cent between 35 to 45 years. The financial and household problems suddenly placed upon the surviving members of these patients' families is most serious and is a matter of public concern as well.

5. The average duration of the fatal cases of tuberculosis from the beginning of the definite illness to death is variously estimated, but may be conservatively stated to be four years. During these years the patient can not earn even partial wages much beyond the first year. It is estimated that for every person developing tuberculosis at least one other person is infected under present social and civic conditions. These figures mean that California must have constantly at least 20,000 persons with tuberculosis which will terminate fatally. In addition to this there is an unknown number of persons who ultimately recover or die after many years with some other disease given as the cause of death.

6. A preliminary study of 3,350 California patients, under present hospital treatment, shows the following:

Patients in county hospitals (at public expense) -----	1,700
Patients in state hospitals (at public expense) -----	200
Patients in government hospitals (at public expense) -----	200
Patients in benevolent hospitals (not over \$1 a day charged, balance subscribed by public) -----	250
Patients in sanitariums (not over \$15 per week, balance subscribed by public) -----	350
Patients in sanitariums (\$100 per month up—paid by patients or relatives) -----	350
Patients in sanitariums (private rates not quoted) -----	300

During the years 1907-1911 inclusive out of approximately 10,000 patients tabulated by the commission as treated in institutions, over 50 per cent were cared for entirely at public expense. This number is incomplete and is in addition to an unknown percentage for those afforded private charity.

7. The transmission of tuberculosis from cows to human beings, *especially to children*, has been established as a scientific fact, and milk

is known to be the chief agent in this transfer. California has a considerable percentage of its dairy cows and beef cattle infected with tuberculosis. Relatively few herds are completely free. Systematic testing of herds in various sections of the State carried on under the supervision of the State Veterinarian shows a possible average of 12 per cent infected. The number of children started on their fatal course toward death from tuberculosis is not known, but it is a sufficiently large percentage to warrant every effort to eliminate tuberculous animals from the milk and meat industry.

8. The economic values upon which the tuberculosis problem depends vary greatly, according to the locality under consideration, but the following figures represent a fair average:

(a) Probably 90 per cent of the families and unmarried persons in California are living upon less than \$1,500 per year incomes.

(b) The wage-earners receive from \$500 to \$1,500 per year, with a general possible average of \$800 in California.

(c) The minimum cost of maintaining a family (man, wife, four children or less) is generally recognized to be \$650 to \$750 per year.

(d) The question of a wage-earner's living in the country, or in an uncongested part of the city, is limited as a rule to the range of a five-cent fare and one hour of travel each way.

(e) The cost of properly caring for a child from birth to twenty years of age varies from \$3,000 to \$4,000, with a probable minimum average of \$100 per year for the period of time during which the child is dependent on others for support.

(f) The commercial value of human lives has been variously estimated. All employers of men and women know the value of a good workman, and express this commercially in the salaries paid. These salaries, translated into capitalized values, indicate that the average adult workman is worth in gross valuation from \$12,000 to \$20,000, but when the cost of his maintenance, unemployment, etc., is deducted, he is not worth to his family more than \$3,000 to \$10,000 in money equivalent. The United States National Vitality Report, after correcting such figures as these, for age distribution of deaths and the percentages of preventability, estimates the average economic loss on all lives so sacrificed to be \$1,700 each.

(g) The majority of statistics bearing upon sources of income to a family other than through the efforts of the father show that the mother may bring in $1\frac{1}{2}$ to 2 per cent through mending or other home piecework, and 6 to 8 per cent through taking in boarders. The minor children may collectively bring in 8 to 10 per cent more. A possible 20 per cent therefore of the minimum necessary income for a family may be supplied by a mother and her children without sacrificing her home or the schooling of the children.

(h) The average cost of maintenance of a tuberculosis sanitarium can probably not be reduced below two dollars per day per patient. Practically no charitable institution, even those limiting their patients to selected cases, can cover expenses for less than \$40 per month. Proper home care will probably mean as much in equivalent values.

(i) Various estimates by careful students of the tuberculosis problem in the United States indicate that of the total number of *tuberculosis patients* at any given time, one half are totally inca-

pacitated as wage-earners, while the other half are reduced 50 per cent in their wage-earning capacity. It is also estimated that 60 per cent of this loss on a consumptive is his personal and family loss, the remaining 40 per cent being lost to the State.

(j) The cost of caring for orphans of parents who have died of tuberculosis is a factor. The State of California pays \$100 per year for the maintenance of a full-orphan and \$75 per year for a half-orphan. For foundlings the State pays \$12.50 per month.

(k) The average cost of a dairy cow may be considered to be \$75. If all those cows which react to the tuberculin test are slaughtered under State or Federal inspection, 70 per cent will probably be passed for use as meat. The owners will realize from \$20 to \$30 per head for their animals disposed of in this way. The remaining 30 per cent condemned by the inspectors as showing such generalized tuberculosis as to be unfit for food purposes will be a total loss, because the salvage on hides, tallow, and fertilizer value is practically equivalent only to the cost of slaughter.

(l) Since the median age for deaths due to tuberculosis is 33 years, with an expectancy of 33 years more of life, the majority of victims of the disease die before the public has an opportunity to know their potential value. A list of one hundred world famous men and women who have died during the past five years, after having profoundly influenced every human interest — financial, governmental, literary, religious, journalistic, military, dramatic — shows an average age of 36 years to have been attained before public recognition was achieved. The average age of death for this group was 69 years. One way of graphically illustrating the potential loss from tuberculosis to any community is to determine the number of persons who have died of tuberculosis under the age of 33 years, and then estimate the value to the community of a similar number of persons who did not die at that age, but lived on to become successful and influential members of the community. The wealth and increased measure of life generally, resulting from the activities of these members, fairly represent the potential loss suffered through the tuberculosis ravages.

(m) The "colonist rate" tragedy and many other economic phases of the problem should be included in any complete synopsis of basic data for estimating the cost of tuberculosis.

9. The moral and sociologic issues involved in the relations of tuberculosis to poverty, crime, and despondency are of tremendous importance, but are too indefinite to be set down in generalized percentages and totals.

10. And, finally, the one great fact which overshadows all else is the needless amount of suffering, sorrow, and human heartache endured by those who are daily dropping out of their successful careers and happy homes amongst us, to drift awhile before the victory of the bacillus is complete.

SOME SPECULATIONS ON THE IMPORTANCE OF THE PROBLEM.

With the data roughly outlined above, one may make many interesting estimates of the cost of tuberculosis in California, and in special *localities within the State*. The following trial balance is made up by *starting with the one definite fact* in our possession, i. e., that we have

approximately 5,000 deaths each year from tuberculosis. If the average duration of the serious illness of each of these victims is four years, it is obvious that there must be at least 20,000 patients constantly in the State. That there are more than this number is certain, but the case-mortality in tuberculosis is such a variable percentage that no figures are worth much except those based upon actual morbidity reports for special areas. If we take only 20,000 as a basis, and use the lowest reasonable figures for expense items, our trial balance would read something like this:

20,000 Consumptives.	
RECEIPTS.	EXPENDITURES.
(1) Earnings of early stage patients capable of earning \$800 a year when well: 7,500 at $\frac{1}{2}$ earning capacity -----	(1) Loss of earning on basis of wages, etc., indicated in receipts column: 7,500 at \$400 reduction in wages -----
7,500 at no earning capacity -----	7,500 at \$800 reduction in wages -----
(2) Earnings of newly infected persons whose wage earning power has not yet been affected: 5,000 at \$800 -----	(2) Expenditures for drugs and medical advice, etc.: 7,500 early stage cases at \$120 per year -----
	(3) Expenditures for nursing, maintenance, medical care: 7,500 advanced cases at \$360 per year -----
Total receipts -----	(4) Expenditure by newly infected persons for drugs and medical advice, etc.: 5,000 at \$60 per year -----
\$7,000,000	(5) Loss to the employer of 5 per cent efficiency through failing strength, days off from work, etc., before reduction of salary comes: 5,000 at \$40 -----
	(6) Loss of life — each life being averaged as worth \$1,700 only: 5,000 lives at \$1,700 -----
Net loss over receipts ----	(7) Miscellaneous expenditures (fumigation, funeral expenses, etc.) -----
\$15,000,000	
\$22,000,000	Total expenditures ---- \$22,000,000

A net loss of \$15,000,000 per year is worth investigating carefully. Estimating 60 per cent of this loss to be the personal loss of the patient and his family, there is left \$6,000,000 as the annual loss to the State on account of the uncontrolled spread of tuberculosis. Sir Ronald Ross states in a series of "Sanitary Axioms" that "for economic reasons alone governments are justified in spending for the prevention of such diseases (endemic diseases) a sum of money equal to the loss which the diseases inflict upon the people." The United States Conservation Commission estimated that 85 per cent of all tuberculosis was preventable. This would mean that \$12,750,000 of this annual loss is preventable. From any basis of estimating the economic value of increased population it would seem conservative to say, that if the Tuberculosis Commission can prove that effective measures will reduce the amount of tuberculosis by even 10 per cent, the State would make money by investing any sum necessary up to \$1,500,000 per year in the project. A saving of 10 per cent of the five thousand deaths per year would mean the equivalent to the State of 500 new settlers each year at the median age of 33 years with an expectancy of 33 years more of life.

This is but one of many estimates which any one can make for the State or his locality, if he desires to work out the value of health conservation to the Nation.

THE FIVE-STEPS-FORWARD-AND-ONE BACK METHOD OF PROGRESS.

In addition to the needless loss from tuberculosis, California sacrifices many lives to other preventable diseases. There occur approximately thirty thousand deaths each year in the State. Probably ten thousand of these could be prevented or postponed till after the age of forty-five, through the application of scientific knowledge now available. Since nineteen hundred, California has added one million people to her population. This is approximately one hundred thousand per year, of which thirty thousand each year are native born. If twenty thousand more are considered as representing the normal increase due to persons who are not attracted to California through any efforts in advertising the State, there remains a possible fifty thousand each year who become residents as a result of the combined advertising carried on by the California Development Board, the chamber of commerce, the railroads, and many similar organizations. Assuming that the cost of this advertising is only \$200,000 per year, we have an average cost of \$4 per capita to obtain these settlers. In other words, we "boost" strenuously to get five permanent residents, and then lose one, or 20 per cent, through failure to wage an effective warfare on preventable causes of death.

The last report of the California Development Board in its introductory paragraph says: "The Pacific Slope needs population — a population that will settle in our fertile valleys and till the soil. We want to select the best people from all over the world and build up a citizenship that for intelligence, industry and moral worth can not be excelled anywhere * * *. It is the purpose of the California Development Board to have its agents in every country in Europe to advertise our State and the Exposition and to encourage the right kind of people to immigrate to our shores. It will be our aim to reach the very best people, and particularly those who will settle on our lands."

Enough twenty-acre farms in the San Joaquin and Sacramento valleys alone are advertised for five hundred and fifty thousand families.

CALIFORNIA FARMS AND CONSUMPTIVES NEED EACH OTHER.

There is a time in the history of at least 85 per cent of California's consumptives when the right kind of advice, and perhaps a change of occupation to proper outdoor work on small farms, would turn them aside from their course toward death into a contented life for a normal span of years. If the State were to provide the facilities for reaching those needing this advice, and could offer them the benefit of technical training in practical farming, the development associations might well afford to spend at least twenty thousand dollars per annum (four dollars per capita for the five thousand each year whom tuberculosis is now sending on their way to the undertaker) in boosting the scheme and in encouraging the opening up of farm colonies adapted to the needs of this class of settlers. This may not be the solution or even an approach toward the solution which will be recommended by the Commission in its final report, but it serves to illustrate the necessity for business men actively interesting themselves in the problem. That such a solution *of the problem* has been worked out for very many persons is evidenced *by the large percentage* of southern California families that have done it.

KEEPING THE WELL, WELL.

The life insurance companies can afford to put money into the solution of this problem. These companies now spend large sums of money in protecting themselves against the acceptance of tuberculosis "risks," and in payment of insurance for deaths caused by the disease in spite of their precautions. That many other business enterprises recognize the importance of health conservation is shown by the welfare work, which has become a part of their administrative scheme of aiding their employees in general maintenance of a high standard of physical health. The organizations working for pure milk, for playgrounds, for five-cent car fares and rapid transit to the open country, for proper tenement house construction, for the elimination of the saloon and of prostitution so far as possible — in short, for all those things which make for the preservation of the home — are doing an invaluable service for the State. But such organizations, as a rule, are able only to finance their work in limited areas as a practical demonstration of what can be done. All these activities must eventually be adopted by the people as a part of state and local government, if they are to benefit the entire population. This means legislation and bond issues; and bond issues mean questions as to the necessity for the bonds; and questions mean local facts and figures.

THE OFFICIAL REPORT OF THE COMMISSION.

Accurate facts and figures, and convincing business propositions for the solution of the tuberculosis problem, represent the work assigned to the Tuberculosis Commission. It is to be hoped that before January, 1913, the case against the tubercle bacillus will be complete and that the commission's report will have been made the basis for developing a dominant idea relative to further progress in eliminating tuberculosis from the causes of sickness, poverty, and death in California.

THE TUBERCULOSIS COMMISSION.

By G. P. JONES, Acting Director, Bureau of Publications and Health Information,
State Board of Health.

The legislature of 1911 appropriated \$5,000 for continuing the education of the public concerning tuberculosis, and for enabling the State Board of Health to cause a special investigation of the disease in California, and to "ascertain the effects of localities, employments, conditions and circumstances on the health of those developing the disease, and to determine the best means for its eradication." To this end a commission, consisting of an executive board of five and an advisory board of fifty members, was appointed.

The executive board, as selected, is composed of the following:

Dr. George H. Kress of Los Angeles, chairman.

Dr. Chas. C. Browning of Los Angeles.

Dr. R. G. Brodrick of San Francisco.

Mr. A. Bonnheim of Sacramento.

Miss Katherine Felton of San Francisco.

Each of these persons is actively associated with anti-tuberculosis work in some section of California. Dr. Kress is president of the California Society for the Study and Prevention of Tuberculosis, and Dr. Browning is a *recognized authority*, having engaged for many years in

active battle against the disease in Southern California. Dr. Brodrick is executive secretary of the San Francisco Tuberculosis Association and City Health Officer. Mr. Bonnheim is president of the California Public Health League and of the White Crusaders. Miss Felton, as secretary of the San Francisco Associated Charities, has had extended opportunity to closely observe economic and sociologic conditions in relation to tuberculosis.

ADVISORY MEMBERS SELECTED FOR INTEREST AND EFFICIENCY.

Likewise, the advisory board has been selected from a list of several hundred qualified workers, so as to have representatives who are connected with all phases of the problem — economic, educational, executive, legislative and medical. Following are the names of members arranged alphabetically and followed by mention of one or more well known activities in which the members are engaged:

- Rev. Chas. F. Aked, San Francisco,
Minister, First Congregational Church.
- Dr. John L. Avey, Redlands,
State Senator.
- J. J. Bakewell, Jr., San Francisco,
Architect, and formerly director, San Francisco Tuberculosis Association.
- Dr. W. Jarvis Barlow, Los Angeles,
Superintendent, Barlow Sanatorium for Tuberculosis.
- Rev. Dana Bartlett, Los Angeles,
Member Los Angeles Housing Commission.
- Chas. H. Bentley, San Francisco,
Sales Manager, California Fruit Cannery Association.
- Chas. A. Bliss, Sacramento,
Member 1911 Assembly.
- L. D. Bohnett, San Jose,
Member 1911 Assembly.
- Dr. Richard G. Boone, Berkeley,
Lecturer in Education, University of California.
- C. B. Boothe, Los Angeles,
Former president, State Tuberculosis Association.
- A. E. Boynton, Oroville,
State Senator, 1911.
- Dr. Philip King Brown, San Francisco,
Medical director of Arequipa Sanatorium for Early Cases of Tuberculosis in Wage-Earning Women.
- Mrs. Samuel Brust, San Diego,
Secretary, San Diego Tuberculosis Society.
- A. Caminetti, Jackson,
State Senator, 1911.
- Rev. D. O. Crowley, San Francisco,
Director Youths' Directory and Vice-President, Associated Charities.
- Miss Margaret B. Curry, San Francisco,
Chairman, Social Science Section, California Club.
- Frederick W. Dohrmann, San Francisco,
Member Central Council Associated Charities, San Francisco.
- Dr. Geo. H. Evans, San Francisco,
Member of Executive Council, San Francisco Tuberculosis Association.
- Dr. N. K. Foster, Oakland,
Director Department of Health and Sanitation, Oakland Schools.
- Prof. J. H. Francis, Los Angeles,
City Superintendent Public Schools.
- J. E. Gardner, Watsonville,
Former Attorney for State Board of Health.
- Dr. Frederick P. Gay, Berkeley,
Professor of Pathology and Bacteriology, University of California.
- Dr. Minerva Goodman, Stockton,
Medical Superintendent of Stockton Red Cross Tuberculosis Hospital.
- Thos. F. Griffen, Modesto,
Member of 1911 Assembly.
- Miss Alice Griffith, San Francisco,
Chairman of Housing Commission, San Francisco Associated Charities.

- Dr. C. M. Haring, Berkeley,
Agricultural Experiment Station, Assistant Professor Veterinary Science,
University of California.
- Dr. Geo. H. Hart, Los Angeles,
City Veterinarian of Los Angeles Health Department.
- Dr. Frederick W. Hatch, Sacramento,
General Superintendent of State Hospitals for the Insane.
- John E. Hoyle, San Quentin,
Warden of San Quentin State Prison.
- Edward Hyatt, Sacramento,
State Superintendent of Public Instruction.
- Dr. John C. King, Banning,
Director, Tuberculosis Sanatorium.
- Walter Macarthur, San Francisco,
Editor Coast Seaman's Journal.
- Mrs. M. W. Kincaid, San Francisco,
Member San Francisco Board of Education.
- Martin A. Meyer, San Francisco,
Rabbi, Temple Emanu-El.
- Mrs. Robert O. Moody, Berkeley,
Formerly Instructor in Biology, Cornell University.
- Dr. H. N. Morrison, Los Angeles,
Chief Surgeon of Santa Fe.
- Dr. Gayle G. Moseley, Redlands,
Superintendent of Redlands Settlement Sanatorium.
- John I. Nolan, San Francisco,
Secretary, San Francisco Labor Council.
- A. B. Nye, Sacramento,
State Controller.
- Dr. Wm. Ophuls, San Francisco,
Professor Pathology and Bacteriology, Cooper Medical College.
- Dr. Geo. C. Pardee, Oakland,
Chairman of the State Conservation Commission.
- Dr. Robert A. Peers, Colfax,
Medical Director of the Colfax School for the Tuberculous.
- Dr. F. M. Pottenger, Monrovia,
Medical Director, Pottenger Sanatorium.
- Dr. Geo. F. Reinhardt, Berkeley,
Professor of Hygiene and Director Infirmary, University of California.
- W. A. Sutherland, Fresno,
Member of 1911 Assembly.
- Dr. Geo. E. Tucker, Riverside,
Secretary of the California State Tuberculosis Society, Riverside County
Health Officer.
- Dr. Edward von Adelung, Oakland,
Vice-President of Alameda County Tuberculosis Society.
- Dr. Wm. C. Voorsanger, San Francisco,
Secretary of San Francisco Tuberculosis Association.
- Dr. Chas. H. Whitman, Los Angeles,
Medical Director of Los Angeles County Hospital.
- Frederick S. Withington, San Francisco,
Actuary of Western States Life Insurance Company.

SCOPE OF WORK UNDERTAKEN BY COMMISSION.

This Board is divided into ten committees, each of which is presided over by a member of the executive board. Nearly the entire work of the commission is embraced in the work of these units, which are enumerated as follows:

1. Institutional Activities: Administration. Dr. Browning, chairman.
2. Institutional Activities: Construction. Dr. Browning, chairman.
The construction and administration of sanatoria, hospitals, dispensaries, camps, etc., are included in the work of these committees as well as home treatment and general prophylaxis.
3. School Construction and Health Administration of Schools. Miss Felton, Chairman.
4. Housing Conditions. Miss Felton, chairman.
The work of these committees refers to open air and out door schools, medical inspection of school children; also, general housing conditions,—in homes, tenements, factories, hotels, and lodging houses.

5. Sociologic and Economic Conditions. Dr. Kress, chairman.

6. Legal Procedure. Dr. Kress, chairman.

Special attention will be given by these committees to statistical work, showing the relation of tuberculosis to daily life, and economic and sociologic conditions. The gathering of legal information and the advising of the executive board regarding proposed legislation, based upon the experience of other commonwealths and upon present conditions in this State, will be a duty of these committees.

7. Scientific Problems. Dr. Brodrick, chairman.

8. Educational Measures. Dr. Brodrick, chairman.

The study of scientific data relative to human and bovine tuberculosis, their prophylaxis, etiology and methods of transmission; and the education of the public by means of literature, press reports, sermons, exhibitions, demonstrations and the like, will be undertaken by these committees.

9. Industrial and Commercial Problems. Mr. Bonnheim, chairman.

10. Registration and Disinfection. Mr. Bonnheim, chairman.

These committees will take up an occupational investigation of tuberculosis and will study the problems dealing with transportation, fumigation, reporting of cases and deaths, proper disinfection, etc.

The personnel of the ten committees is as follows:

- | | |
|---|---|
| <p>1. Institutional Activities: Administration.
Dr. Chas. C. Browning, chairman.
Dr. W. Jarvis Barlow.
Dr. Robert A. Peers.
Dr. Frederick W. Hatch.
Miss Margaret B. Curry.</p> | <p>2. Institutional Activities: Construction.
Dr. Browning, chairman.
Dr. Edward von Adelung.
Dr. Gayle G. Moseley.
Dr. Chas. H. Whitman.
Mrs. Samuel Brust.
Mr. John E. Hoyle.</p> |
| <p>3. Construction and Health Administration of Schools.
Miss Katherine Felton, chairman.
Dr. N. K. Foster.
Dr. Geo. F. Reinhardt.
Prof. J. H. Francis.
Mrs. M. W. Kincaid.
Dr. Richard G. Boone.</p> | <p>4. Housing Conditions.
Miss Katherine Felton, chairman.
Miss Alice Griffith.
Rev. Dana Bartlett.
Mr. Walter Macarthur.
Dr. Philip King Brown.
Mr. J. J. Bakewell, Jr.</p> |
| <p>5. Sociologic and Economic Conditions.
Dr. George H. Kress, chairman.
Mr. A. B. Nye.
Mr. Frederick W. Dohrmann.
Dr. John C. King.
Mr. Thomas F. Griffen.
Mrs. Robert O. Moody.</p> | <p>6. Legal Procedure.
Dr. George H. Kress, chairman.
Mr. Chas. A. Bliss.
Dr. John L. Avey.
Mr. A. E. Boynton.
Mr. J. E. Gardner.
Mr. W. A. Sutherland.</p> |
| <p>7. Scientific Problems.
Dr. R. G. Brodrick, chairman.
Dr. Frederick P. Gay.
Dr. Wm. Ophuls.
Dr. F. M. Pottenger.
Dr. C. M. Haring.
Dr. Geo. H. Hart.</p> | <p>8. Educational Measures.
Dr. R. G. Brodrick, chairman.
Mr. Edward Hyatt.
Rev. D. O. Crowley.
Rev. Chas. F. Aked.
Rabbi Martin A. Meyer.
Mr. Frederick S. Withington.</p> |
| <p>9. Industrial and Commercial Problems.
Mr. A. Bonnheim, chairman.
Dr. Geo. C. Pardee.
Dr. Geo. E. Tucker.
Dr. Minerva Goodman.
Mr. John I. Nolan.
Mr. Chas. H. Bentley.</p> | <p>10. Registration and Disinfection.
Mr. A. Bonnheim, chairman.
Dr. Wm. C. Voorsanger.
Mr. C. B. Boothe.
Dr. H. N. Morrison.
Mr. A. Caminetti.
Mr. L. D. Bohnett.</p> |

SPECIAL CONSULTANTS AND AUXILIARY WORKERS.

In addition to these administrative boards constituting the officially appointed Commission, many persons have undertaken important special work in connection with the investigation. A large number of women's clubs, medical societies, labor associations and other organizations have appointed representatives to obtain accurate data on social and economic phases of the problem in various districts of California. A smaller number of experts in welfare organization work is volunteering a considerable amount of personal time for the study of special matters under consideration by the several committees.

The commission hopes to devise ways and means to publish a comprehensive report, including the formal recommendations of the commission, together with the full reports of each committee and a series of supplementary papers covering the data upon which the committee reports will be based. It is expected that the commission's report will be filed with the State Board of Health by the first of November, nineteen hundred and twelve.

SOME OF THE LINES OF INVESTIGATION NOW IN PROGRESS.

The statistical data for tuberculosis covering the five-year period, 1907 to 1911, inclusive, has been made the basis for special investigations relative to the climatology, geographic distribution of cases, occupations, length of residence in California, etc. A complete analysis of deaths from tuberculosis for 1910, (approximately 5,000), is being made the basis for obtaining financial and economic data bearing upon the problem in California.

A report from hospitals and sanatoria accepting tuberculosis patients shows 63 per cent of all patients being treated in institutions, to be receiving free treatment. A comprehensive survey of county hospitals is now being made by the commission.

A survey of housing conditions in the principal cities of California is also being made, with the special object of learning how far the new tenement house laws are or may be made a factor in combating the spread of disease.

These are illustrations of the work by which the commission hopes to arrive at definite conclusions as to the best methods for California's solution of her tuberculosis problem.

AN ARTICLE TO THINK OVER.

By A. B. NYE, State Controller.

EDITOR'S NOTE.—The article printed below was first published in the Monthly Bulletin of the California State Board of Health, December, 1905. The legislature of 1905 passed a bill appropriating \$200,000 for the construction of a state hospital for the tuberculosis. The then Governor, Dr. George C. Pardee, who was a medical man of high standing, refused to sign the bill because he did not believe a single central hospital would solve the problem. The author of the article was his private secretary. Since that time Dr. Pardee has become the chairman of California's Conservation Commission, and Mr. Nye has become recognized, through his efficient administration of the State Controller's office, as one of the greatest and most careful students of California's financial and social problems. The article is so pertinent, so sound in argument and so suggestive of the real issues involved that it has been reprinted as originally published.

Looming up before the State of California, and but a very short distance ahead in the natural line of advance, is the momentous question of a right public policy in relation to tuberculosis. It does not appear that it will be possible to avoid meeting it, nor should we desire to do so when we stop to consider all that is at stake. Our only solicitude should be to meet it right, which means in the manner that will produce the largest results in proportion to the effort expended. The question of ways and means is one to interest every citizen and every taxpayer, because the battle for the extirpation of consumption will be a long one and the expense will be very great. On its medical side, a question for physicians alone, tuberculosis also presents social, industrial, and financial aspects which are quite as well worthy of attention, and these must appeal to all classes of intelligent persons.

Without sufficient preliminary discussion, and in a state of the public mind altogether unpropitious for satisfactory decision of so large a question, the attempt was made at the last session of the Legislature to commit us to the policy of a large state hospital for tuberculous patients. Two hundred thousand dollars was the amount of the appropriation proposed, and on the part of the advocates of the measure there appeared to be no possible doubt that this would be the wisest first step which could be taken. Indeed, there seemed to be, in some quarters, an easy assumption that if we could only have a state institution for consumptives the whole problem would be solved.

But for several reasons, and especially because of the financial one, the establishment of a new state institution is always a serious matter, and in a State already so overburdened with institutions as California is, it ought not to be undertaken until it has been made very certain that in no other way could the same amount of good be accomplished. It is not the initial expense which is to be dreaded, but rather the consequences which are to come after.

SHOULD NOT ENCOURAGE INSTITUTIONALISM.

The fact that other commonwealths have established hospitals for consumptives does not of itself settle the question whether institutional treatment would be the best method of dealing with tuberculosis in California. What other states have done is experimental only, and no state has undertaken to care for all its consumptives in one hospital or in several. Most of these state experiments have been commenced on a small scale, and where there is one sanatorium established by the commonwealth, there are generally twenty which owe their existence to private enterprise or to municipal action. In our penal and reformatory efforts and in our attempts to care for the dependent classes, we have suffered a good deal from institutionalism in California, and it is not a good idea to encourage at the outset in dealing with the problem of tuberculosis.

Let us look for a moment at the dimensions of the problem as measured merely by the number of persons suffering from the disease. A careful estimate based on the latest figures of the State Board of Health gives as the number of deaths per year from tuberculosis in California an average of 3,500. The ordinary run of the disease is said to be three years, which renders it easy to figure out that the total number of persons who are at any one time afflicted with the disease and destined to die of it must be 10,500. But at least twice as many persons suffer from tuberculosis as actually perish of it, and therefore the total number of consumptives must be, at a moderate estimate, 21,000.

TUBERCULOSIS A PUNISHMENT FOR OUR SOCIAL SINS.

Of course no such number of patients could be accommodated in any one hospital, even if all consumptives could be compelled to leave their homes and undergo institutional treatment. The mere transportation of such numbers of tuberculous patients, in a state so large as California, would be a crushing expense, and their traveling would create additional and unnecessary dangers for the portion of the population not yet afflicted. At best, a state hospital for consumptives could be only a demonstration of methods — an illustration showing how the sanatoria

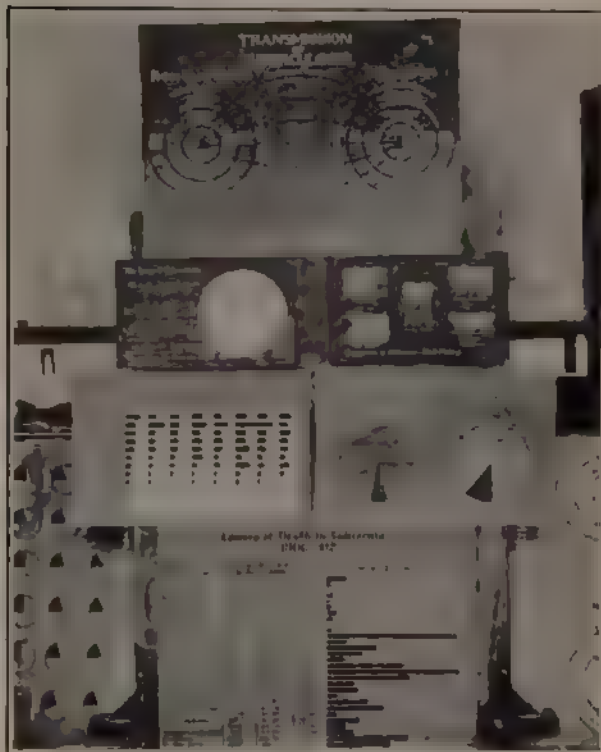
conducted by private persons and by local authorities ought to be managed — and it has not yet been made clear that we need a state institution even for that purpose.

Unless the present writer — who is not an expert and offers these ideas merely as the suggestions of a layman — is greatly mistaken, the more one digs down into underlying reasons and causes the more he is likely to become satisfied that what we need for the solution of the tuberculosis problem is not so much a state institution as a state policy. The main consideration is this: Tuberculosis is an ever-present problem with each community and with each family and individual. The specific origin of the disease may be one, but the causes of its prevalence are many and have a direct connection with all our social usages and habits. Tuberculosis is a form of punishment for many of our social sins — for insanitary towns and bad rural dwellings, for crowded tenements and personal vices, for poverty and poor nutrition, for ill-ventilated workshops and the greed of capital. But the master cause of all is lack of intelligence on the part of the people who put themselves in the way of this great danger. If this be so, and there seems to be no doubt of it, what is needed more than anything else is a campaign of education which will teach people to realize that they can not commit the sin and escape its penalty. It is a case in which the whole community must be aroused to mend its ways, and in the doing of this both voluntary effort and a well-directed state policy are needful.

EACH COMMUNITY SHOULD CARE FOR ITS VICTIMS.

No doubt there will and should be public sanatoria, and each county and city should be required to maintain its own under the regulation of state laws and probably subject to state supervision. In the long run the results will be better if each community is required to care for the victims of its own public sins. If such victims could be thrust off upon the bounty of the State, the community could, to a degree, evade responsibility and ignore the consequences of its criminal neglect; but it could not so well do it if those consequences should be kept continually under the eyes of its own people. Moreover, with public dispensaries and local hospitals, most of the patients would never leave their own homes for any long period of time, the necessary public expense would be kept at a minimum, and there would be avoided the great evil of creating a new class of the unemployed — the homeless discharged patients of a large state institution. The reports show that already this evil exists in connection with institutions for consumptives in other states.

But whatever our conclusions may be with reference to the establishment of a state hospital for tuberculous patients, there can be no denial of the public duty to take up and deal with the great problem whose existence has suggested the action proposed at the last session of the legislature. Every state in the Union has cause enough to do something, but California, most of all, for our reputation for climate has brought such a migration of consumptives that the death rate from that disease has gone above the average, and upon the map of states showing where the scourge is worst California now appears as a very black spot. Every consideration of safety urges us to cleanse it.



These are the means by which the story of tuberculosis is told. The story is mostly tragedy. On the opposite page two cuts are prints to illustrate two of the great lines of work being carried on to lessen the annual extension of the disease.

The miniature charts printed above show how the statistics of tuberculosis are used in the various exhibits which have been held in so many parts of the country. Seeing is believing with most people, and seeing statistics displayed in interesting diagrams makes a lasting impression of the importance of the problem. The Bureau of Publications and Health Information of the State Board of Health will gladly prepare basic data for special sections of the State in which societies may wish to set up local exhibits. The cost of having charts made up from these figures is small and work can generally be arranged for by local volunteers. Education is the chief weapon by means of which rapid progress will be made in lowering the death rate from tuberculosis.



These are types of devices for procuring the "fresh air" treatment.



Sanitary dairies are an important factor in the fight against bovine tuberculosis.

DEPARTMENT REPORTS.

REPORT OF BUREAU OF VITAL STATISTICS FOR NOVEMBER.

GEORGE D. LESLIE, Statistician.

State Totals and Annual Rates.—The following table shows for California as a whole the birth, death, and marriage totals for the current and preceding months in comparison with those for the corresponding months of last year, as well as the annual rates per 1,000 population represented by the totals for the current and preceding months. The rates are based on an estimated midyear population of 2,488,256 for California in 1911, the estimate having been made by the Census Bureau method with slight modifications.

Birth, Death and Marriage Totals, with Annual Rates per 1,000 Population for Current and Preceding Months, for California: November.

MONTH.	MONTHLY TOTAL.		Annual rate per 1,000 population, 1911.
	1911.	1910.	
November:			
Births	2,722	2,558	13.3
Deaths	2,889	2,660	14.1
Marriages	2,490	2,290	12.2
October:			
Births	3,169	2,864	15.0
Deaths	2,590	2,683	12.3
Marriages	2,516	2,356	11.9

The birth, death and marriage totals for November were much greater in 1911 than in 1910, the deaths exceeding the births somewhat for this month in each year.

County Totals.—The first table on the following page shows the monthly birth, death, and marriage totals for the principal counties of the State, the list being limited to counties having a population of at least 25,000 according to the Federal Census of 1910. Totals are also shown for San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), as well as for Los Angeles and Orange counties together.

City Totals.—The second table on the following page gives the birth and death totals for the principal freeholders' charter cities, the list including all chartered cities with a census population of at least 15,000 in 1910. Totals are given likewise for San Francisco in comparison with Oakland, Alameda, and Berkeley, the three cities adjoining one another on the east shore of San Francisco Bay, as well as for Los Angeles in comparison with neighboring chartered cities (Long Beach, Pasadena, Pomona, and Santa Monica).

Birth, Death and Marriage Totals, for Principal Counties: November.

County.	NOVEMBER, 1911.		
	Births.	Deaths.	Marriages.
California	2,722	2,889	2,490
Counties of more than 25,000 population (1910):			
Alameda	273	265	231
Butte	41	45	22
Contra Costa	36	21	15
Fresno	121	89	84
Humboldt	27	34	27
Kern	28	45	37
Los Angeles	611	643	520
Marin	19	9	121
Orange	57	39	88
Riverside	36	42	33
Sacramento	112	117	95
San Bernardino	54	71	40
San Diego	52	89	93
San Francisco	506	595	448
San Joaquin	46	101	69
San Mateo	24	17	46
Santa Barbara	31	24	24
Santa Clara	93	103	95
Santa Cruz	26	28	29
Solano	35	20	14
Sonoma	47	70	34
Tulare	40	28	19
Selected groups:			
San Francisco and other bay counties	858	907	861
Los Angeles and Orange counties	668	682	608

Birth and Death Totals, for Principal Cities: November.

City.	NOVEMBER, 1911.	
	Births.	Deaths.
Freeholders' charter cities	1,645	1,698
Cities of more than 15,000 population (1910):		
Alameda	31	21
Berkeley	39	32
Fresno	41	33
Long Beach	22	23
Los Angeles	416	402
Oakland	191	171
Pasadena	25	30
Riverside	14	21
Sacramento	95	103
San Diego	37	61
San Francisco	506	595
San Jose	35	35
Stockton	27	55
Selected groups:		
San Francisco	506	595
Oakland, Alameda and Berkeley	261	224
Total, Bay cities	767	819
Los Angeles	416	402
Neighboring cities	73	83
Total	489	485

Causes of Death.—The following table shows the classification of deaths in California for the current month, in comparison with the preceding month:

Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths for Current and Preceding Month, for California: November.

Cause of Death.	Deaths: November	Proportion per 1,000.	
		November	October
All causes	2,889	1,000.0	1,000.0
Typhoid fever	47	16.3	17.0
Malarial fever	19	6.6	4.2
Smallpox	3	1.0	---
Measles	11	3.8	0.8
Scarlet fever	6	2.1	1.2
Whooping-cough	6	2.1	5.0
Diphtheria and croup	20	6.9	3.8
Influenza	5	1.7	1.2
Other epidemic diseases	16	5.5	4.6
Tuberculosis of lungs	311	107.6	108.5
Tuberculosis of other organs	48	16.6	19.7
Cancer	187	64.7	66.4
Other general diseases	128	44.3	51.0
Meningitis	28	9.7	11.2
Other diseases of nervous system	242	83.8	79.5
Diseases of circulatory system	479	165.8	181.1
Pneumonia and broncho-pneumonia	233	80.7	60.2
Other diseases of respiratory system	61	21.1	19.7
Diarrhea and enteritis, under 2 years	110	38.1	46.7
Diarrhea and enteritis, 2 years and over	23	8.0	12.7
Other diseases of digestive system	150	51.9	53.7
Bright's disease and nephritis	164	56.8	50.2
Childbirth	30	10.4	7.7
Diseases of early infancy	105	36.3	39.8
Suicide	73	25.3	18.9
Other violence	248	85.8	81.5
All other causes	136	47.1	53.7

In November there were 479 deaths, or 16.6 per cent of all, from diseases of the circulatory system, and 359, or 12.4 per cent, from various forms of tuberculosis. Heart disease thus led tuberculosis considerably.

Other notable causes of death were: Violence, 321; diseases of respiratory system, 294; diseases of digestive system, 283; diseases of nervous system, 270; cancer, 187; Bright's disease and nephritis, 164; and epidemic diseases, 133.

The deaths from epidemic diseases were as follows: Typhoid fever, 47; diphtheria and croop, 20; malarial fever, 19; measles, 11; and all other epidemic diseases, 36.

The deaths from the four leading epidemic diseases reported for the month were distributed by counties as follows:

TYPHOID FEVER.		DIPHTHERIA AND CROUP.		MALARIAL FEVER.	
Alameda	6	Alameda	3	Butte	3
Butte	1	Fresno	2	Calaveras	1
Colusa	1	Los Angeles	8	Colusa	1
Fresno	2	Riverside	1	Glenn	1
Kern	1	San Diego	2	Kern	1
Los Angeles	7	San Francisco	2	Kings	3
Marin	1	San Joaquin	1	Los Angeles	1
Monterey	1	Santa Clara	1	Sacramento	2
Orange	3	Total	20	San Benito	1
Placer	2			Shasta	2
Riverside	4			Stanislaus	1
San Francisco	10			Tulare	1
San Joaquin	3			Ventura	1
Santa Clara	1			Total	19
Siskiyou	1				
Tehama	1				
Ventura	1				
Yuba	1				
Total	47				

Geographic Divisions.—The following table presents data for geographic divisions, including the metropolitan area, or San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), in comparison with the rural counties of Northern and Central California:

Deaths from Main Classes of Diseases, for Geographic Divisions: November.

Geographic Division.	DEATHS: NOVEMBER.										
	All Causes	Epidemic Diseases	Tuberculosis (All Forms)	Cancer	Diseases of Nervous System	Diseases of Circulatory System	Diseases of Respiratory System	Diseases of Digestive System	Bright's Disease and Nephritis	Violence	All Other Causes
THE STATE	138	369	187	710	479	294	283	164	321	399	
Northern California	369	19	39	18	43	55	38	21	51	51	
Coast counties	186	3	22	6	29	24	17	15	23	23	
Interior counties	183	16	17	12	14	31	14	6	28	28	
Central California	1,581	71	158	116	139	282	177	161	89	213	
San Francisco	595	22	59	—	—	123	62	63	35	86	
Other bay counties	312	19	23	—	23	55	39	37	—	36	
Coast counties	169	5	17	14	20	33	17	14	8	23	
Interior counties	505	25	59	22	54	72	50	47	31	68	
Southern California	989	43	162	53	88	142	79	88	54	135	
Los Angeles	643	26	111	40	62	92	56	62	43	96	
Other counties	296	17	51	13	26	50	23	26	11	39	
Northern and Central California Metropolitan area	1,850	90	197	134	182	337	215	195	110	264	
Rural counties	907	41	82	80	65	177	101	100	50	122	
	1,043	49	115	54	117	160	114	95	60	142	

Morbidity Report for November, 1911.

Disease.	Cases.	Places.
Smallpox.....	17	12
Mumps.....	45	4
Diphtheria.....	274	45
Scarlet fever.....	262	54
Typhoid fever.....	138	30
Malaria.....	49	14
Tuberculosis.....	207	11
Measles.....	297	15
Whooping-cough.....	98	6
Chicken pox.....	207	21
Poliomyelitis.....	17	6
Gonorrhoea.....	10	5
Syphilis.....	3	3
Cerebro spinal meningitis.....	1	1
Erysipelas.....	14	6
Pneumonia.....	38	4
Glanders.....	8	1
Influenza.....	18	3
Botheln.....	1	1
Scabies.....	2	2
Optthalmia neonatorum.....	1	1
Tonsillitis.....	23	1
Croup.....	1	1
Anthrax.....	1	1
Trachoma.....	1	1
Pemphigus.....	1	1
Tetanus.....	1	1

REPORT OF PURE FOOD AND DRUG LABORATORY FOR NOVEMBER AND DECEMBER, 1911.

By PROFESSOR M. E. JAFFA, Director.

During the months of November and December the Laboratory was in receipt of about two hundred and fifty official samples, that is, samples taken under the usual routine by the state inspectors. In addition to these official samples, there have been received several what are termed unofficial samples.

The foods included in the above number of samples are: Eggs, Evaporated Unsweetened Milk, Vinegar, Extracts, Spices, Baking Powder, Condiments, Coffee, Table Syrups, Chopped Meat, Sausages, Confectionery, etc.

These have been examined for the usually occurring adulterants or admixtures, and it is gratifying to state that the percentage of violations is not large.

A number of drug samples were also examined with similar results.

No Food Inspection Decisions have been received from the Secretary of Agriculture, United States Department of Agriculture, during November and December.

NOTICES OF JUDGMENTS.

The following table containing Notices of Judgments, received in September from the United States Department of Agriculture, at the Laboratory, will be of interest to manufacturers and dealers. As previously stated, full copies of notices, as far as they are available, will be sent free, upon application to the Director of the State Food and Drug Laboratory at Berkeley, California:

Number of case and offense charged.	Name and address of defendant or manufacturer.	Specification of offense and disposition of case.
984—Adulteration of tomato pulp.	H. K. Fooks & Co., Laurel, Sussex Co., Del.	Product consisted in part of a filthy, and decomposed animal or vegetable substance. Ordered destroyed.
985—Adulteration and misbranding of cider vinegar.	Oakland Vinegar and Pickle Co., Saginaw, Mich.	Product adulterated with a mixture of dilute acetic acid or distilled vinegar. Plea <i>nolo contendere</i> . Fine, \$2.
986—Misbranding of headache tablets.	Cyrus W. Nelson, (Capitol Pharmacy), Houston, Tex.	Label false and misleading. Fine, \$50 and costs.
987—Misbranding of drug product—"Harlem Oil Capsules."	Holland Medicine Co., Scranton, Pa.	False and misleading statements. Fine, \$10 and costs.
988—Misbranding of Munbug Oil.	Mrs. J. F. Marshall Smith.	False and misleading statements. Fine, \$5.
989—Adulteration and misbranding of a food product—"Chocolate Cremolin."	Shipped from state of New York to Pennsylvania.	Product contained an added deleterious ingredient, to wit: arsenic. Ordered destroyed.
990—Alleged misbranding of "Corno Horse and Mule Feed."		Libel dismissed. No appeal will be taken.
991—Misbranding of "Eg Nutrine, Whole Egg Substitute."	H. H. Ottens Manu- facturing Co., Pa.	False and misleading statements. Fine, \$100. Plea of guilty.
992—Adulteration of tomato catsup.	J. Zinsmeister & Bro., Louisville, Ky.	Product consisted in part of a filthy, decomposed and putrid vegetable substance. Released under bond after paying costs.

NOTICES OF JUDGMENTS—Continued.

Number of case and offense charged.	Name and address of defendant or manufacturer.	Specification of offense and disposition of case.
993—Adulteration of tomato pulp.	Price & Lucas Cider and Vinegar Co., Louisville, Ky.	Product contained a filthy, putrid and decomposed animal and vegetable substance. Court entered a proclamation for default and gave judgment for the United States.
994—Adulteration of tomato pulp.	Price & Lucas Cider and Vinegar Co., Louisville, Ky.	Product consisted in part of a filthy, decomposed and putrid vegetable substance. Court entered a proclamation for default and gave judgment for the United States.
995—Misbranding of cheese.	Silverhill Butter and Cheese Co., Louisville, Ky.	The actual net weight was less than the weight indicated on the packages. Released under \$200 bond.
996—Adulteration and misbranding of tumeric.	Lenn & Fink, New York.	Cereal flour and calcium sulphate had been substituted in part for the article—turmeric. Plea of guilty, sentence suspended.
997—Adulteration and misbranding of olive oil.	Coroneos Bros., Pa.	Cottonseed oil substituted in part for the articles stated on the labels to contain pure olive oil. Fine, \$25 and costs.
998—Adulteration and misbranding of tragacanth.	Huber & Fuhrman Drug Mills, Wis.	Label false and misleading. Indian gum mixed with tragacanth. Fine, \$25.
999—Adulteration and misbranding of "Brace-up Tomato Tonic."	Arrow Distilleries Co., Peoria, Ill..	Product consisted in whole or in part of a filthy, decomposed, and putrid vegetable substance. Label false and misleading. Fine, \$10 and costs.
1000—Adulteration of sodiac aluminic sulphate.	Ashley Warehouse, St. Louis, Mo.	Product contained 60 milligrams of metallic arsenic per kilo. Released under \$1,000 bond after paying costs.
1001—Adulteration of tomato paste.	H. Polinsky.	Product consisted in whole or in part of filthy, putrid or decomposed vegetable substance. Ordered destroyed.
1002—Misbranding of cheese.	Algoma Produce Co., Algoma, Wis.	Short in weight. Label false and misleading. Fine, \$25.
1003—Adulteration and misbranding of tomato catsup.	Burlington Vinegar and Pickle Co., Burlington, Iowa.	Product consisted in whole or in part of a filthy, decomposed and putrid animal or vegetable substance. Fine, \$50 and costs.
1004—Adulteration and misbranding of tomato catsup.	Anderson Canning Co., Keokuk, Iowa.	Product composed in whole or in part of filthy, decomposed or putrid animal or vegetable substance. Label false and misleading. Fine, \$200 and costs.
1005—Adulteration of desiccated eggs.	Loose-Wiles Biscuit Co., Minneapolis, Minn.	There was present in the product a filthy, decomposed and putrid animal substance. Ordered destroyed.
1006—Adulteration of tomato catsup.	New York, New Haven and Hartford R. R. Co., Boston, Mass.	Product contained a filthy, decomposed and putrid animal and vegetable substance. Ordered destroyed.
1007—Adulteration and misbranding of vinegar.	Solomon-Wickersham Co., Globe, Arizona	Product colored whereby inferiority was concealed. False and misleading statements. Released under bond after paying costs.
1008—Adulteration of tomato paste.	Henry Horner & Co.	Product consisted in whole or in part of a filthy, decomposed or putrid animal or vegetable substance. Ordered destroyed.
1009—Misbranding of "Powd. Alex. Senna."	Huber & Fuhrman Drug Mills, Wis.	Sand and foreign vegetable tissue had been substituted in part for senna leaves. Fine, \$25. Plea of guilty.

NOTICES OF JUDGMENTS—Continued.

Number of case and offense charged.	Name and address of defendant or manufacturer.	Specification of offense and disposition of case.
1010—Adulteration and misbranding of "Gr'd. Alex. Senna."	Huber & Fuhrman Drug Mills, Wis.	Product was composed in part of foreign material consisting in part of stems, sand and other foreign vegetable tissue. Fine, \$25.
1011—Adulteration and misbranding of ground kamala.	Allaire Woodward & Co., Illinois.	Product contained 40 per cent sand. Fine, \$10 and costs.
1012—Adulteration and misbranding of powdered colocynth.	Allaire Woodward & Co., Illinois.	Product consisted largely of seeds. Imitation. Fine, \$10 and costs.
1013—Adulteration of cayenne pepper.	Hanley & Kinsells Coffee and Spice Co., Missouri.	Product contained sand. Fine, \$10 and costs.
1014—Misbranding of coffee.	Brokaw Merchandise Co., Illinois.	Coffee was an imitation. Not Java and Mocha coffee. Fine, \$10 and costs.
1015—Adulteration and misbranding of maple sugar.	Brokaw Merchandise Co., Illinois.	Cane sugar had been mixed with product. Fine, \$10 and costs.
1016—Bond forfeiture. (wine.)	Sweet Valley Wine Co., New Orleans.	Sale was in violation of terms of bond. Judgment entered favor United States <i>in solido</i> , sum \$1000 and costs. Petition for writ of error granted. Judgment of lower court affirmed.
1017—Bond forfeiture (coffee.)	Climax Coffee and Baking Powder Co., Indianapolis, Ind.	Sale in violation of terms of bond. Judgment in favor of United States for \$200 and costs, aggregating \$221.86.
1018—Misbranding butter.	S. B. Pond Co., Keokuk, Iowa.	Label false and misleading. Fine, \$75.
1019—Misbranding of Dr. Moffett's "Teethina."	T. N. Flourney, St. Louis, Mo.	Label false and misleading. Fine, \$10 and costs.
1020—Misbranding of champagne.	E. Schraubstadter & E. A. Groezinger, San Francisco, Cal.	Article white wine artificially carbonated. Product purported to be a foreign product when it was of domestic origin. False and illegal guaranty. Fine, \$100.

REPORT OF THE STATE HYGIENIC LABORATORY FOR NOVEMBER, 1911.

By WILBUR A. SAWYER, M.D., Director.

LABORATORIES.

State Hygienic Laboratory, Campus of the University of California, Berkeley.

Director: W. A. Sawyer, M.D.

Bacteriologist: Eleanor Seymour, M.D.

Southern Branch of the State Hygienic Laboratory, 379 Wilcox Building, Los Angeles.

Stanley P. Black, M.D., in charge.

The Southern Branch renders service to Imperial, San Diego, Orange, Riverside, San Bernardino, Los Angeles, Ventura, and Santa Barbara counties.

San Joaquin Valley Branch of the State Hygienic Laboratory, 32 Patterson Block, Fresno.

W. W. Cross, M.D., in charge.

The San Joaquin Valley Branch renders service to Kern, Kings, Tulare, Fresno, Madera, Merced, and Mariposa counties.

EXAMINATION OF DISINFECTANTS.

There are many substances and devices on the market which are credited in advertisements with great power of killing bacteria and preventing disease. Many of the substances sold as disinfectants are almost powerless to kill bacteria. The use, as disinfectants, of inert solutions

under certain conditions becomes a danger to the health of those who depend upon them for protection. Their sale under false claims brings about a waste of both the purchasing price and the time devoted to their application.

In order to help the public and the State to purchase disinfectants on their merits, the State Board of Health urges manufacturers to state on labels, and to specify in bids, the killing power of their products for bacteria as compared to the killing power of pure phenol, commonly called carbolic acid. For the sake of uniformity of standard, a request is made that the "Hygienic Laboratory Phenol Coefficient" be used. When occasion demands, the State Board of Health, through its Hygienic Laboratory, will determine the "Hygienic Laboratory Phenol Coefficient" for substances suspected of making false claims of bactericidal power or of false labeling with regard to the phenol coefficient. The "phenol coefficient" of a substance is a figure which shows that the substance is the indicated number of times as strong as pure phenol under the conditions of the experiment. The "Hygienic Laboratory Phenol Coefficient" is the phenol coefficient obtained according to a uniform method carefully specified in its minute details by the United States Hygienic Laboratory in Washington, D. C. This test is described in the *Journal of Infectious Diseases*, January 3, 1911, volume VIII, pages 1 to 26. In this test two series of solutions of many strengths are made, one series of phenol and one of the disinfectant to be tested. The weakest solutions which will kill typhoid germs in $2\frac{1}{2}$ minutes and in 15 minutes are ascertained. The concentration of the weakest solution of the disinfectant which will kill germs in $2\frac{1}{2}$ minutes is compared with the concentration of the weakest solution of phenol which will do the same. The relative killing power of the two substances acting through a period of $2\frac{1}{2}$ minutes is then computed. The same relative killing power is computed for the same substances acting for 15 minutes. An average of the result for $2\frac{1}{2}$ minutes with that for 15 minutes gives the Hygienic Laboratory Phenol Coefficient when the tests are performed with all the prescribed precautions.

Some disinfectant solutions were examined during the past month at the State Hygienic Laboratory for the State Board of Control. This was done in order that the killing power for bacteria might be known before contracts were let for sales to our State institutions. The variation in strength was startling, the strongest disinfectant being $6\frac{1}{2}$ times as efficient as the weakest.

It is hoped that the public will protect itself by demanding, before making purchases, that manufacturers state the phenol coefficient of their products. Greater weight should be put on the coefficient obtained by the careful methods used in determining the Hygienic Laboratory Phenol Coefficient than on phenol coefficients obtained in other ways. With the phenol coefficients and the prices per unit of volume of a series of disinfectants, the prospective buyer can compare the prices per unit of efficiency. After considering the cost per unit of efficiency, the physical properties should be weighed. Odor, solubility, soapiness, and other properties are important considerations.

If purchasers will demand a statement of the one essential property of a disinfectant, its killing power for bacteria, most of the present day fraud in the *manufacture and sale* of antiseptics will cease to exist.

HOOKWORM.

The Director of the Laboratory, at the request of the Secretary of the State Board of Health, spoke before the Teachers' Institute of Amador County at Sutter Creek on November 22d. The address dealt with various public health topics, and especially with the significance of hookworm in the deep gold mines of this region. Several physicians of Sutter Creek and Jackson, including the County Health Officer, were visited by the director. Careful inquiry showed that, as far as is yet known, hookworm infection in this region is quite strictly limited to the miners. Only one proved case had been discovered among persons who had not been in the mines. This encourages the hope that the habits of our people and our climate are not favorable to the spread of this disease outside of the warmth and moisture of the deep mines. Further investigation is needed. The laboratory will assist by making examinations for the presence of the eggs of hookworm when proper specimens are sent in by physicians or health officers.

Summary of Examinations made in the California State Hygienic Laboratory during the month of November, 1911.

Main Laboratory at Berkeley.		Positive.	Negative.	Incon- clusive.	Total.
Condition suspected:					
Anthrax		1	--	--	1
Diphtheria		8	45	--	53
Gonococcus Infection		1	1	--	2
Malaria		--	2	--	2
Rabies		8	--	--	8
Tuberculosis		7	8	--	15
Typhoid		10	27	--	37
Water Pollution		--	6	2	8
Miscellaneous		2	1	2	5
					<u>131</u>
San Joaquin Valley Branch.					
Condition suspected:					
Diphtheria		20	11	1	32
Tuberculosis		--	5	--	5
					<u>37</u>
Southern Branch.					
Condition suspected:					
Diphtheria		9	3	--	12
Typhoid		2	3	--	5
Miscellaneous		1	--	--	1
					<u>18</u>
Total number of examinations					<u>186</u>

Pasteur Treatment for the Prevention of Rabies by the State Hygienic Laboratory during the month of November, 1911.

San Joaquin Valley Branch:	Treatment commenced.	Treatment completed.
Course of treatment of persons bitten by rabid animals....	2	2

Examinations of Disinfectants during the month of November, 1911.

Main Laboratory at Berkeley:	
Determination of the "Hygienic Laboratory Phenol Coefficient"	3

Participation in Instruction in Public Health during November, 1911.

Main Laboratory at Berkeley:	
Bacteriological Instruction Outfits sent out	5
Bacteriological Instruction Outfits in use	19
Lectures by members of the staff	2

LIST OF COUNTY HEALTH OFFICERS.

County.	Health Officer	Address.
Alameda	Dr. C. L. McKown	Niles
Alpine*	County Recorder Frank Smith	Markleeville
Amador	Dr. E. E. Endicott	Jackson
Butte	Dr. L. Q. Thompson	Gridley
Calaveras	Dr. E. W. Weirich	Angels Camp
Colusa	Dr. C. A. Poage	Colusa
Contra Costa	Dr. F. S. Gregory	Pittsburg
Del Norte	Dr. E. M. Fine	Crescent City
El Dorado	Dr. L. M. Lelander	Placerville
Fresno	Dr. W. T. Burks	Fresno
Glenn	Dr. J. A. Randolph	Willows
Humboldt	Dr. E. H. Bryant	Eureka
Imperial	Dr. Virgil McCoombs	El Centro
Inyo	Dr. I. J. Woodin	Independence
Kern	Dr. O. M. Bumgarner	Bakersfield
Kings	Dr. Ralph Motherol	Hanford
Lake	Dr. W. E. Upton	Kelseyville
Lassen	Dr. W. E. Dosler	Susanville
Los Angeles	Dr. E. O. Sawyer	Los Angeles
Madera	Dr. Mary R. Butlin	Madera
Marin	Dr. J. H. Kuser	Novato
Mariposa	Dr. F. L. Wright	Mariposa
Mendocino	Dr. J. Litchfield	Ukiah
Merced	Dr. C. H. Castle	Merced
Modoc	Dr. John Stille	Alturas
Mono*	County Recorder Geo. Delury	Bridgeport
Monterey	Dr. Garth Parker	Salinas
Napa	Dr. E. Z. Hennessey	Napa
Nevada	Dr. Carl P. Jones	Grass Valley
Orange	Dr. John Wehrly	Santa Ana
Placer	Dr. O. L. Barton	Loomis
Plumas	Dr. F. D. Walsh	Quincy
Riverside	Dr. George E. Tucker	Riverside
Sacramento	Dr. Hugh Beattie	Elk Grove
San Benito	Dr. J. M. O'Donnell	Hollister
San Bernardino	Dr. Philip M. Savage	San Bernardino
San Diego	Dr. Nathan Hunt	San Diego
San Francisco	Dr. R. G. Brodrick	San Francisco
San Joaquin	Dr. Wm. Friedberger	Stockton
San Luis Obispo	Dr. H. M. Cox	San Luis Obispo
San Mateo	Dr. W. G. Beattie	Colma
Santa Barbara	Dr. J. C. Bainbridge	Santa Barbara
Santa Clara	Dr. William Simpson	San Jose
Santa Cruz		Santa Cruz
Shasta	Dr. F. Stabel	Redding
Sierra	Dr. R. B. Davy	Downsville
Siskiyou	Dr. F. J. McNulty	Yreka
Solano	Dr. S. G. Bransford	Suisun
Sonoma	Dr. P. A. Meneray	Santa Rosa
Stanislaus	Dr. F. R. De Lappe	Modesto
Sutter	Dr. J. McFadyen	Yuba City
Tehama	Dr. J. S. Cameron	Red Bluff
Trinity	Dr. D. B. Fields	Weaverville
Tulare	Dr. M. E. Pettit	Visalia
Tuolumne	Dr. Wm. Lyman Hood	Sonora
Ventura	Dr. A. A. Maulhardt	Oxnard
Yolo	Dr. W. J. Blevins	Woodland
Yuba	Dr. J. H. Barr	Marysville

*This county has not been able to arrange with any physician to serve as county health officer.

LIST OF CITY HEALTH OFFICERS.

City.	Health Officer.	City.	Health Officer.
Alameda.....	Dr. A. Hieronymus	Hollister.....	Dr. R. G. Curtis
Albany.....	Dr. Robt. Hector	Hollywood.....	E. O. Palmer
Alhambra.....	Dr. F. E. Corey	Huntington Beach.....	C. F. Sorenson
Alturas.....	Dr. John Stille	Huntington Park.....	Dr. W. Thompson
Alviso.....		Imperial.....	Dr. C. E. Standlee
Anaheim.....	Dr. J. L. Beebe	Inglewood.....	Dr. H. A. Putnam
Antioch.....	Dr. W. S. George	Jackson.....	F. V. Sanguinetti
Arcadia.....		Kennett.....	Dr. J. P. Sandholdt
Arcata.....	Dr. G. W. McKinnon	Kernville.....	
Arroyo Grande.....		King City.....	
Auburn.....	Jas. H. Breslin	Kingsburg.....	
Azusa.....	Dr. L. W. Atkinson	Lakeport.....	Jabez Banks
Bakersfield.....	S. D. Mullins	Larkspur.....	
Belvedere.....	Dr. Florence Scott	Lincoln.....	F. R. Elder
Benicia.....	Dr. W. L. McFarland	Lindsay.....	Dr. W. W. Tourtillot
Berkeley.....	Dr. J. J. Benton	Livermore.....	Dr. H. G. McGill
Biggs.....	Dr. B. Caldwell	Lodi.....	Dr. F. W. Colman
Bishop.....	Dr. J. W. Shute	Long Beach.....	Dr. W. H. Newman
Blue Lake.....	Dr. G. N. Wood	Lompoc.....	
Brawley.....	Dr. L. L. Lindsey	Lordsburg.....	Dr. J. E. Hubble
Burbank.....		Los Angeles.....	Dr. L. M. Powers
Burlingame.....		Los Banos.....	Dr. J. L. McClelland
Calistoga.....		Los Gatos.....	Dr. C. K. Small
Calexico.....	Dr. Wm. F. Smith	Loyalton.....	Dr. G. L. Coates
Chico.....	G. H. Taylor	Madera.....	Dr. Mary R. Butin
Chino.....	Dr. John W. Callnon	Maricopa.....	Dr. H. N. Taylor
Claremont.....		Martinez.....	Dr. E. E. Brown
Cloverdale.....	F. P. Conner	Marysville.....	Wm. Meek
Coalinga.....	Dr. H. S. Warren	Mayfield.....	Dr. F. M. Selbert
Colfax.....	Silas Ulery	McCloud.....	Dr. R. T. Legge
Colton.....	Dr. J. A. Champion	McKittrick.....	G. M. Chitwood
Colusa.....	Dr. C. A. Poage	Merced.....	Dr. C. H. Castle
Compton.....	J. W. Stone	Mill Valley.....	Capt. M. Staples
Concord.....	Dr. F. F. Neff	Modesto.....	Dr. J. J. Knowlton
Coram.....	Geo. H. Thomas	Montague.....	
Corning.....	Dr. W. F. Maggard	Mojave.....	A. Smith
Corona.....	Dr. W. H. Chapman	Monrovia.....	Dr. R. D. Adams
Coronado.....	Dr. Raffaele Lorini	Monterey.....	Edward Allen
Cottonwood.....	Dr. A. B. Gilliland	Morgan Hill.....	Dr. D. W. Watt
Covina.....		Mountain View.....	Dr. A. H. McFarlane
Crescent City.....		Napa.....	J. D. Treadway
Daly City.....		National City.....	Dr. T. F. Johnson
Davis.....	Dr. W. E. Bates	Nevada City.....	Hugh Murchie
Delano.....	Dr. H. Hildreth	Newman.....	Dr. H. V. Armistead
Dinuba.....	Dr. Wm. Whittington	Newport Beach.....	
Dorris.....	Dr. A. A. Atkinson	Oakdale.....	Elmer E. Endicott
Dixon.....	W. C. Rhem	Oakland.....	Dr. E. N. Ewer
Dunsmuir.....	Dr. E. J. Cornish	Ocean Side.....	Dr. R. S. Reid
Eagle Rock.....	Dr. C. H. Phinney	Ocean Park.....	Dr. W. M. Kendall
Elsinore.....	Dr. Hugh Walker	Ontario.....	Dr. C. S. Orr
Emeryville.....	Dr. A. T. Drennan	Orange.....	Dr. F. L. Champline
Escondido.....	Dr. David Crise	Orland.....	Dr. S. Goldman
Etna Mills.....	Dr. W. H. Haines	Oroville.....	Dr. W. F. Gates
Eureka.....	Dr. L. A. Wing	Oxnard.....	Dr. Ralph W. Avery
Exeter.....	Dr. A. D. McLean	Pacific Grove.....	E. B. Richi
Fairfield.....	Dr. S. G. Bransford	Palo Alto.....	Hubert O. Jenkins
Ferndale.....	Dr. C. A. Phelan	Pasadena.....	Dr. Stanley P. Black
Fort Bragg.....	Dr. L. C. Gregory	Paso Robles.....	B. B. Pierce
Fort Jones.....	Thos. Bransom	Perris.....	A. F. Hardy
Fortuna.....	Dr. Geo. S. Loveren	Petaluma.....	Dr. J. M. Proctor
Fowler.....	Dr. W. T. Crawford	Pinole.....	J. Chattleton
Fresno.....	Dr. Geo. H. Aiken	Pittsburg.....	Dr. F. S. Gregory
Fullerton.....	Dr. F. J. Gobar	Placerville.....	P. J. Hall
Gilroy.....	Dr. John A. Clark	Pleasanton.....	Dr. S. J. Wells
Glendale.....	Dr. R. E. Chase	Pomona.....	Dr. T. J. Wilson
Grass Valley.....	Paul E. Sears	Porterville.....	Dr. O. C. Higgins
Gridley.....	Dr. L. L. Thompson	Piedmont.....	Geo. T. Burtchael
Hanford.....	Dr. R. W. Musgrave	Point Arena.....	
Hayward.....	Dr. G. E. Reynolds	Potter Valley.....	
Healdsburg.....	Dr. J. W. Seawell	Randsburg.....	E. B. McGinnes
Hemet.....	Dr. A. B. Eadie	Red Bluff.....	Dr. F. J. Bailey
Hermosa Beach.....	E. McCaskey	Redding.....	L. D. Poole
Hercules.....	Dr. M. L. Fernandez	Redlands.....	Dr. Chas. E. Ide
Hillsborough.....		Redondo Beach.....	Dr. D. R. Hancock

CITY HEALTH OFFICERS—Continued.

City.	Health Officer.	City.	Health Officer.
Redwood City	Dr. J. L. Ross	Sierra Madre	Dr. R. H. Mackerras
Richmond	Dr. Chas. R. Blake	Sebastopol	Dr. J. J. Keating
Rio Vista	Dr. A. J. McKinnon	Slason	
Riverside	Dr. Thos. R. Grimth	South Pasadena	Dr. C. A. Whitting
Rocklin	Dr. S. P. Rugg	South San Francisco	Dr. H. G. Plymire
Roseville	Dr. R. H. Ashby	Stockton	Dr. R. T. McGurk
Ross		Susanville	Dr. E. S. Drucks
Sacramento	Dr. Wm. K. Lindsay	Suisun	
Saint Helena	G. B. Anderson	Stanton	
Salinas	S. A. McCollum	Sonoma	
San Anselmo	Dr. Chipman	Taft	Dr. E. G. Wood
San Bernardino	Dr. C. V. McConnico	Tehachapi	R. M. Spencer
San Diego	Dr. F. H. Mead	Tracy	Dr. J. G. Murrell
San Francisco	Dr. R. G. Brodrick	Tehama	
Sanger	Dr. T. F. Madden	Tropico	
San Jose	Dr. M. F. Hopkins	Tulare	Dr. J. E. Rosson
San Jacinto	Thos. Lloyd	Turlock	Dr. E. L. Clough
San Juan	Henry Drake	Ukiah	Dr. J. Liftchild
San Luis Obispo	Dr. P. L. Rookledge	Upland	W. C. Redman
San Rafael	Dr. W. F. Jones	Vacaville	Dr. A. P. Finan
San Mateo	Dr. S. G. Goodspeed	Vallejo	Dr. E. A. Peterson
San Leandro	P. C. Du Bois	Ventura	J. H. Hardey
Santa Ana	Dr. J. I. Clark	Visalia	Dr. M. L. Pettit
Santa Barbara	Dr. D. A. Conrad	Watsonville	Dr. F. H. Koepke
Santa Cruz	Dr. H. E. Piper	Watts	Dr. E. J. Richie
Santa Clara	Dr. J. F. Beattie	Wheatland	Dr. A. W. Foshay
Santa Monica	Dr. W. H. Parker	Whittier	Dr. W. H. Stokes
Santa Paula	Dr. G. E. ApLynne	Willits	Dr. W. L. Blodgett
Santa Rosa	Dr. Jackson Temple	Willows	Thos. Kinkade
Santa Maria	Dr. O. P. Paulding	Winters	Dr. J. H. Halle
Sausalito	Dr. A. H. Mays	Woodland	Peter Scott
Sawtelle	Dr. A. B. Hromadka	Yreka	E. W. Nolan
Selma	Dr. F. H. Williams	Yuba City	



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CALIFORNIA STATE BOARD OF HEALTH

MONTHLY BULLETIN



Vol. 7

JANUARY, 1912

No. 6

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GUY P. JONES, <i>Acting Director, Bureau of Publication and Health Information,</i>	Sacramento.

REGULAR MEETINGS

The meetings of the California State Board of Health are held regularly the first Saturday of each month, but the quarterly meetings required by law to be held at the Capitol of the State are ordinarily designated as January, April, July, and October.

By courtesy of the University of California the Food and Drug Laboratory and the Hygienic Laboratory are located in University buildings at Berkeley, California.

Address all general communications to the
SECRETARY, Sacramento, California.

JANUARY BULLETIN.

COMMENTS.

An Explanation and an Apology.

The dates of publication of recent numbers of the State Board of Health Bulletin have been irregular and long delayed, due primarily to an effort to sufficiently supplement the printing fund by various economies, to make possible the publication of a number of important articles now on file. Among these articles may be mentioned by way of illustration:

1. A most interesting and instructive article by Dr. Raymond Russ upon the Dresden International Hygienic Exhibit.
2. A series of articles on the pure milk problem in California by Dr. Hart, officer in charge of Dairy Inspection for Los Angeles, Dr. Keane, State Veterinarian, officers of the State Medical Commissions, etc.
3. Articles on the growth of individual sanitary devices, individual cups, toilets and accessories, towels, etc.
4. New statistical articles on infant mortality, vaccination, marriages, occupations, tuberculosis, etc.
5. In addition to such subjects the Secretary has received requests for the publication of data and popular articles on many other phases of public health work.

In his desire to meet so far as possible the requests of citizens for material of this character, the Secretary has fallen out of the frying pan into the fire. However, the large number of protests received on account of the irregular issuance of the bulletin has one reassuring phase—it shows that a great many persons read the bulletin regularly. To these readers the Secretary apologizes and desires to announce the resumption of regular publication subject to the operation of plans outlined below.

* * * * *

A New Plan for Issuing the Bulletin.

After the February issue the bulletin will be mailed regularly the tenth of each month. In order that each number may bear the name of the current month the issue following the February number will be designated the "March-April" number.

The regular contents of the bulletin will comprise Section I, and will contain:

- (1) A résumé of general health conditions throughout the State for the preceding month;
- (2) The bureau reports for the preceding month;*
- (3) And such comments by the Secretary as may seem pertinent.

In addition to the contents of Section I, there will be printed from time to time under the designation, Section II, such articles of special interest as may be ready for publication and for which funds are available to cover printing. When these special articles are of value primarily only to certain classes of citizens, *i. e.*, health officers, sanitary

*Part of the statistical tables for the Bureau of Vital Statistics will necessarily be for the second month preceding, as birth, death and marriage certificates are not filed until the fifth of the month following the one in which they are made out.

information in technical information and health conservation movement. These are not to be mailed with them on the regular mailing list, except on special request. Each of these reports will contain a brief synopsis of the work of the board of that number.

These arrangements are rendered necessary in an emergency by the demands of citizens who take a real interest in public health movement, and who will make use of the practical information furnished them. It is to be hoped the legislature will adequately increase the printing appropriation of the State Board of Health, or will make some other provision to the people the kind of information, concerning sanitary principles of health, which is eagerly sought.

* * * * *

Plans for the New Year. The work of the State Board for the ensuing year will include in addition to the routine work. An effort will be made to increase the registration of births up to the 90 per cent standard reported by the United States Census Bureau, for places in the State.

The enforcement of the law for the prevention of pollution will be continued, and during the coming year will be made in applying the law to the enforcement of the law. The prompt securing of morbidity reports of important communicable diseases will be made possible.

It is expected that more work will be done in tracing outbreaks of typhoid fever, diphtheria, smallpox and scarlet fever than in past years. The enforcement of the law will be carried on largely in the sections of the State not hitherto been inspected, and special attention will be given to the enforcement of the law. and drug surveys to determine the extent to which the law is being operated.

The excellent work of the committee of fifteen in preparing the Board on desirable standards for public health will be continued, and probably many of the committee's suggestions will be adopted as rules and regulations governing local health officers.

The Tuberculosis Commission will continue its work and present a report upon the progress of the State will make formal recommendations for legislative action.

There are some of the new laws which have been passed which plans to make a special survey of the State at 1918.

New Statistical Tables

The new statistical tables which have been prepared by the State Board of Health, and which will be published in the near future, will be of great value to the public health workers in the State. They will be of great value to the public health workers in the State.

MEMB

MARTIN J
W. LE M
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F. K. AL
WALLACE
JAMES F
O. STAN:

WILLIA
JOHN F
LOUIS ?
GEORGE
M. E. :

W. A.

GUY F

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Health conservation. For example, among the December tenth
 persons for persons over fifteen years of age only 57.2 per cent
 had any kind of occupation, but when these are further classified by
 it is found that 50.5 per cent of the men had occupations while
 3.9 per cent of the women were reported as having any occupation.
 The men the professional, clerical, managerial and similar occupa-
 tions occupations represent collectively 25.4 per cent the average
 service group, 21.7 per cent the manufacturing and mechanical
 work group, 21.1 per cent the agricultural, transportation and other
 labor group, 22.1 per cent. It was 25.3 per cent if all the females
 below fifteen years and 50.5 per cent from fifteen to forty-two
 is 41.3 per cent between 15 to 24 years 17. per cent between 25 to 34
 is 11.4 per cent between 35 to 44 years

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SPECIAL HANDLING REQUEST

[illegible]

REPORT OF THE BUREAU OF ADMINISTRATION.

JOHN F. LEINEN, Director.

Beginning with the report for January, 1912, which will appear in the February bulletin, a brief résumé of the work of this bureau will be included each month.

REPORT OF BUREAU OF VITAL STATISTICS FOR DECEMBER.

GEORGE D. LESLIE, Statistician.

State Totals and Annual Rates.—The following table shows for California as a whole the birth, death, and marriage totals for the current and preceding months in comparison with those for the corresponding months of last year, as well as the annual rates per 1,000 population represented by the totals for the current and preceding months. The rates are based on an estimated midyear population of 2,488,256 for California in 1911, the estimate having been made by the Census Bureau method with slight modifications.

Birth, Death and Marriage Totals, with Annual Rates per 1,000 Population for Current and Preceding Months, for California: December.

Month.	MONTHLY TOTAL.		Annual rate per 1,000 population: 1911.
	1911.	1910.	
December—			
Births -----	3,275	2,842	15.5
Deaths -----	3,432	3,136	16.2
Marriages -----	2,652	2,405	12.5
November—			
Births -----	2,722	2,558	13.3
Deaths -----	2,889	2,660	14.1
Marriages -----	2,490	2,290	12.2

The birth, death, and marriage totals for December, as for November, were much greater in 1911 than in 1910. The birth, death, and marriage rates were also higher in 1911 for December than for November.

County Totals.—The first table on the following page shows the monthly birth, death, and marriage totals for the principal counties of the State, the list being limited to counties having a population of at least 25,000 according to the Federal Census of 1910. Totals are also shown for San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), as well as for Los Angeles and Orange counties together.

City Totals.—The second table on the following page gives the birth and death totals for the principal freeholders' charter cities, the list including all chartered cities with a census population of at least 15,000 in 1910. Totals are given likewise for San Francisco in comparison with Oakland, Alameda, and Berkeley, the three cities adjoining one another on the east shore of San Francisco Bay, as well as for Los Angeles in comparison with neighboring chartered cities (Long Beach, Pasadena, Pomona, and Santa Monica).

Birth, Death and Marriage Totals, for Principal Counties: December.

County.	DECEMBER, 1911.		
	Births.	Deaths.	Marriages.
California	3,275	3,432	2,652
Counties of more than 25,000 population (1910):			
Alameda	332	342	233
Butte	40	40	14
Contra Costa	39	37	19
Fresno	120	103	93
Humboldt	41	33	27
Kern	33	39	40
Los Angeles	768	786	643
Marin	22	26	72
Orange	25	32	106
Riverside	55	33	25
Sacramento	110	114	98
San Bernardino	81	87	64
San Diego	88	112	88
San Francisco	537	691	446
San Joaquin	84	97	52
San Mateo	69	48	37
Santa Barbara	37	35	28
Santa Clara	121	154	94
Santa Cruz	83	24	35
Solano	21	17	15
Sonoma	66	50	48
Tulare	64	35	39
Selected groups:			
San Francisco and other bay counties.....	999	1,144	807
Los Angeles and Orange counties.....	793	818	749

Birth and Death Totals, for Principal Cities: December.

City.	DECEMBER, 1911.	
	Births.	Deaths.
Freeholders' charter cities.....	1,986	1,968
Cities of more than 15,000 population (1910):		
Alameda	30	36
Berkeley	67	42
Fresno	50	42
Long Beach	39	40
Los Angeles	517	482
Oakland	209	199
Pasadena	49	47
Riverside	24	13
Sacramento	91	98
San Diego	82	89
San Francisco	537	691
San Jose	37	42
Stockton	69	44
Selected groups:		
San Francisco	537	691
Oakland, Alameda and Berkeley.....	306	277
Total, Bay cities.....	843	968
Los Angeles	517	482
Neighboring cities	114	111
Total	631	593

Causes of Death.—The following table shows the classification of deaths in California for the current month in comparison with the preceding month :

Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths for Current and Preceding Months, for California: December.

Cause of death.	Deaths: December.	Proportion per 1,000.	
		December.	November.
ALL CAUSES.....	3,432	1,000.0	1,000.0
Typhoid fever	30	8.7	16.3
Malarial fever	5	1.4	6.6
Smallpox	4	1.2	1.0
Measles	4	1.2	3.8
Scarlet fever	4	1.2	2.1
Whooping-cough	12	3.5	2.1
Diphtheria and croup.....	24	7.0	6.9
Influenza	11	3.2	1.7
Other epidemic diseases.....	12	3.5	5.5
Tuberculosis of lungs.....	421	122.7	107.6
Tuberculosis of other organs.....	58	16.9	16.6
Cancer	175	51.0	64.7
Other general diseases.....	152	44.3	44.3
Meningitis	38	11.1	9.7
Other diseases of nervous system.....	291	84.8	83.8
Diseases of circulatory system.....	567	165.2	165.8
Pneumonia and broncho-pneumonia.....	388	113.0	80.7
Other diseases of respiratory system.....	91	26.5	21.1
Diarrhea and enteritis, under 2 years.....	82	23.9	38.1
Diarrhea and enteritis, 2 years and over.....	26	7.6	8.0
Other diseases of digestive system.....	198	57.7	51.9
Bright's disease and nephritis.....	225	65.5	56.8
Childbirth	37	10.8	10.4
Diseases of early infancy.....	104	30.3	36.3
Suicide	72	21.0	25.3
Other violence	249	72.5	85.8
All other causes.....	152	44.3	47.1

In December there were 567 deaths, or 16.5 per cent of all, from diseases of the circulatory system, and 479, or 14.0 per cent, from various forms of tuberculosis. Heart disease thus led tuberculosis considerably.

Other notable causes of death were: Diseases of respiratory system, 479; diseases of nervous system, 329; violence, 321; diseases of digestive system, 306; Bright's disease and nephritis, 225; cancer, 175; and epidemic diseases, 106.

The deaths from epidemic diseases were as follows: Typhoid fever, 30; diphtheria and croup, 24; whooping-cough, 12; influenza, 11; and all other epidemic diseases, 29.

The deaths from the three leading epidemic diseases reported for the month were distributed by counties as follows:

TYPHOID FEVER.		DIPHTHERIA AND CROUP.		WHOPPING-COUGH.	
Alameda	2	Alameda	4	Alameda	1
Butte	1	Los Angeles	5	Contra Costa	1
Imperial	2	Orange	1	Los Angeles	2
Kern	1	Sacramento	1	Riverside	1
Los Angeles	5	San Bernardino	1	San Francisco	3
Marin	1	San Diego	1	Santa Barbara	1
Modoc	1	San Francisco	4	Slakiyou	2
Orange	2	San Joaquin	1	Ventura	1
Riverside	1	San Luis Obispo	1		
Sacramento	1	Santa Clara	1	Total	12
San Bernardino	1	Solano	1		
San Francisco	5	Sonoma	1		
San Luis Obispo	1	Stanislaus	1		
Santa Clara	1	Tehama	1		
Santa Cruz	1				
Tehama	2	Total	24		
Tuolumne	1				
Yuba	1				
Total	30				

Geographic Divisions.—The following table presents data for geographic divisions, including the metropolitan area, or San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), in comparison with the rural counties of Northern and Central California:

Deaths from Main Classes of Diseases, for Geographic Divisions: December.

Geographic division.	DEATHS: DECEMBER.										
	All causes.	Expendable diseases.	Tuberculosis (all forms).	Cancer.	Diseases of nervous system.	Diseases of respiratory system.	Diseases of circulatory system.	Diseases of digestive system.	Bleed's disease and septicæmia.	Violence.	All other causes.
THE STATE	3,432	106	479	175	329	567	479	306	225	321	445
Northern California	383	13	40	19	49	64	48	33	13	42	62
Coast counties	172	2	22	8	33	38	15	12	7	17	23
Interior counties	211	11	18	11	16	31	33	21	6	25	39
Central California	1,926	54	242	105	174	339	297	175	135	176	220
San Francisco	691	22	84	45	45	134	111	86	49	57	78
Other bay counties	453	13	59	27	37	91	68	36	28	36	58
Coast counties	228	6	29	16	36	41	23	22	24	7	24
Interior counties	554	18	70	7	66	73	96	51	34	66	69
Southern California	1,123	39	197	51	106	164	134	96	77	103	154
Los Angeles	786	21	147	35	67	118	98	63	58	72	112
Other counties	337	18	50	16	39	46	41	35	19	31	42
Northern and Central California	2,809	67	282	124	223	403	345	208	146	218	291
Metropolitan area	1,144	35	143	72	82	225	179	102	77	93	136
Rural counties	1,165	32	139	52	141	178	166	106	71	125	155

Morbidity Report for December, 1911.

Disease.	Cases.	Places.
Poliomyelitis -----	4	3
Typhoid fever -----	88	17
Measles -----	632	25
Scarlet fever -----	276	39
Diphtheria -----	177	33
Malaria -----	36	6
Pneumonia -----	122	17
Tuberculosis -----	305	20
Cerebro-spinal meningitis -----	9	5
Smallpox -----	36	10
Tubercular meningitis -----	3	3
Total -----	1,688	177

REPORT OF THE BUREAU OF THE HYGIENIC LABORATORY
FOR DECEMBER.

WILBUR A. SAWYER, M.D., Director.

Typhoid Carriers.

The spread of most epidemics of typhoid can easily be explained as being due to the distribution of infectious material from known cases of typhoid fever to food or drink through the agency of sewage, flies, or soiled hands. Occasionally possible means of conveyance are evident, but the source of the continual supply of typhoid organisms is not apparent. In many of these cases the infection comes from recovered cases of typhoid who are still discharging the germs in their urine and feces. Such persons are usually free from suspicion because they are well. Dangerous people of this kind are known as "carriers" of typhoid. Their detection involves, first, the examination of the blood of all the suspected individuals for the Widal reaction which shows which persons have had typhoid, and, second, the search for typhoid bacilli in the urine and feces of those who show a positive Widal reaction. In most instances it is found that the typhoid germs are no longer being discharged. Sometimes large number of typhoid germs are found in the urine and feces, and then it is known that there is great danger of infection of the food and drinking water of others. Discovery of the presence of this danger in a person results in prevention of further disease by careful disinfection of excreta, scrupulous personal cleanliness, and avoidance of occupations involving the handling of food.

At the present time the director of the State Hygienic Laboratory is carrying on an epidemiological and bacteriological study of the conditions in a ship sailing to and from San Francisco, and frequently landing sailors who are in the early stages of typhoid. The source of the infection is obscure, but thorough laboratory and field investigation is expected to unravel the mystery and terminate a long series of sickness and deaths.

Glanders.

The State Veterinarian, Dr. Charles Keane, is bringing into the fight against glanders a new and delicate diagnostic test of blood known as the complement fixation test for glanders. This test has been found to

be delicate and reliable by the Bureau of Animal Industry of the United States Department of Agriculture. The State Hygienic Laboratory has offered the use of space and equipment for this work. The laboratory investigation and tests will be carried on by C. A. Pyle, D.V.M., for the State Veterinarian. Dr. Pyle is instructor in Pathology and Physiology in the San Francisco Veterinary College. The director is glad to see the usefulness of the laboratory increased by the work of Dr. Pyle within its walls.

**Summary of Examinations Made in the California State Hygienic Laboratory
During the Month of December, 1911.**

Condition suspected.	Positive.	Negative.	Inconclusive.	Total.
Main Laboratory at Berkeley:				
Anthrax	1			1
Diphtheria	14	41		55
Gonococcus infection		3		3
Hookworm		2		2
Rabies	10			10
Tuberculosis	6	15		21
Typhoid	10	22		32
Water pollution		5		5
Miscellaneous			2	2
				<hr/> 131
San Joaquin Valley Branch:				
Diphtheria	2	30	3	35
Tuberculosis	1	3		4
				<hr/> 39
Southern Branch:				
Diphtheria	9	13		22
Tuberculosis	1			1
Typhoid		2		2
				<hr/> 25
Total number of examinations				195

Pasteur Treatment for the Prevention of Rabies by the State Hygienic Laboratory During the Month of December, 1911.

Southern Branch:	
Courses of treatment of persons bitten by rabid animals:	
Treatment commenced	1
Treatment completed	0

Participation in Instruction in Public Health During December, 1911.

Main Laboratory at Berkeley:	
Bacteriological instruction outfits sent out	7
Bacteriological instruction outfits in use	22

**REPORT OF THE BUREAU OF FOODS AND DRUGS FOR
DECEMBER.**

PROFESSOR M. E. JAFFA, Director.

The following food and drug cases were referred to the several district attorneys for prosecution January 6, 1912:

Food and Drug Cases Referred to District Attorneys January 6, 1912.

Name of article.	Offense.	Manufacturer or jobber.	Accused dealer.	Locality.
Gluten bread -----	Adulterated. Substitution of common flour.	-----	E. J. Stanton -----	Los Angeles.
Burned peanuts -----	Adulterated. Contain shellac, which is not allowed in confectionery.	-----	W. E. Smith Co.-----	Los Angeles.
Eggs -----	Mislabeled. Not fresh.	-----	Albert Cohn -----	Los Angeles.
Chopped meat -----	Mislabeled. Contains sodium benzoate not declared.	R. Vincent, Oakland.	R. Vincent -----	Oakland.
Chopped meat -----	Adulterated. Contains sulphur dioxide.	-----	Tong Sang Co.-----	Oakland.
Eggs -----	Mislabeled. More than 14 days old.	-----	Wright & King -----	Los Angeles.
Eggs -----	Mislabeled. More than 14 days old.	-----	Ludwig-Matthews Co., Inc.	Los Angeles.
Eggs -----	Mislabeled. More than 14 days old.	-----	E. T. Willis -----	Hollywood.
Eggs -----	Mislabeled. More than 14 days old.	-----	F. A. Pierce -----	Los Angeles.
Eggs -----	Mislabeled. More than 3 weeks old.	-----	Chas. Hoffman -----	Los Angeles.
Eggs -----	Mislabeled. More than 21 days old.	-----	F. H. Alderman -----	Los Angeles.
Evaporated milk -----	Adulterated. Deficient in solids. Mislabeled. Not evaporated milk from Jersey cows.	H. M. Le Baron & Son, Valley Ford.	(Dealer protected by guaranty.)	Valley Ford.
Aromatic wine -----	Mislabeled. Contains ethyl alcohol not declared on label.	O. F. Woodward, Le Roy, N. Y.	R. M. Green -----	Oroville.
Eastern eggs -----	Mislabeled. Not fresh eggs.	-----	John Zaferis -----	Los Angeles.

THE ORGANIZATION AND WORK OF THE STATE HYGIENIC LABORATORY.

By DR. W. A. SAWYER, Director, Bureau of the Hygienic Laboratory.

The following outline of work carried on by the State Board of Health refers in detail only to the Division of Biological Examinations of the Bureau of the Hygienic Laboratory.

General Organization of the Bureau.

For administrative purposes the work of this bureau is arranged under three divisions:

- Division of Biological Examinations;
- Division of Preventive Therapeutics;
- Division of Epidemiological Investigations.

The Division of Biological Examinations carries on the routine laboratory examinations for aiding local physicians and health officers in detecting and controlling communicable diseases, and does such other special work as may be assigned by the Director of the Bureau. The work of this division is in the immediate charge of the Chief Bacteriologist and three division bacteriologists, who are stationed at the several branch laboratories described below.

The Division of Preventive Therapeutics carries on the administration of anti-rabic virus to those persons accepted for the Pasteur treatment at State expense, and supervises or assumes charge of the administration of special therapeutic preventive measures in other diseases, when instructed by the Secretary of the Board. This work is in charge of Division Bacteriologists acting under instructions from the Director of the Bureau.

The Division of Epidemiological Investigations carries on the scientific work connected with determining the source and methods of spread of communicable diseases in important outbreaks. This division also has charge of the special diagnosis work required of the State Board of Health in identifying rare or disputed cases of communicable diseases, or those diseases in which an early positive diagnosis is of great importance to the entire State. This work is carried on by the Director of the Bureau and the Secretary of the Board.

The State Hygienic Laboratory and Its Component Parts.

The term "State Hygienic Laboratory" is a general phrase applicable to all that equipment of the State Board of Health used in the laboratory or other scientific work of this bureau. It is divided into a main laboratory, four branch laboratories and a portable field equipment. The main laboratory and the Coast Counties Branch are located at Berkeley in a building kindly furnished by the University of California. The Northern California Branch is located at Sacramento; the San Joaquin Valley Branch at Fresno; and the Southern California Branch at Los Angeles.

The Main Laboratory.

The main laboratory serves the entire State in special examinations, i. e., examinations of brain tissues for the Negri bodies found in rabies; the bacteriological examination of water samples for evidence of sewage pollution; the biological examination of foods suspected as the source of trichinosis, ptomaine poisoning, etc.; the bacteriological testing of disinfectants; the checking of diagnoses of bubonic plague and other important diseases by animal inoculation; and other special work requiring extensive or difficult laboratory technique. This work is carried on by the Director and Chief Bacteriologist. The main laboratory also supervises the preparation and distribution of culture media, awals and other supplies used by the branch laboratories or required in stocking the stations for free distribution of mailing outfits.

Regulations for Using the Main Laboratory.

Specimens forwarded under the conditions specified below should be addressed: State Hygienic Laboratory, Berkeley, California.

RABIES.

Dogs suspected of having rabies should be kept chained or confined. If they really have rabies, the symptoms will develop rapidly and they will usually die within six days. If the animals continue to remain healthy, rabies can be excluded.

If a suspected animal has been killed or has died with symptoms suggesting rabies, the head should be immediately removed and packed in ice in a large wooden pail or box. It should be sent by express (charges prepaid) to the State Hygienic Laboratory, and a letter should be written describing the dog's symptoms and stating the number and identity of people and animals bitten. Special directions and data cards are kept at the depositories for the use of persons having occasion to send the heads of rabid animals. All cases of rabies in animals should be reported to the local health officer at once. Directions concerning the Pasteur treatment for the prevention of the development of rabies are given under a special subhead below.

PLAGUE.

All cases of suspected plague should be reported at once to the Secretary of the State Board of Health. Under his instructions the Director of the Laboratory will make the necessary field and laboratory investigations.

HOOKWORM.

Feces from cases of suspected hookworm may be sent in the containers devised for the transmission of sputum. Special data cards to be sent with the specimens are available at the depositories.

ANTHRAX.

The ear from an animal dying of suspected anthrax should be wrapped in a thick layer of cotton or several layers of cloth soaked in a solution of bichloride of mercury—1 to 500—and should be sent in a water-tight box by express, prepaid. Such packages are not mailable. A letter giving the history of the case should be sent immediately by mail.

FECES AND URINE.

Urine and feces are not examined except in connection with special investigations instituted by the State Board of Health. If examinations are desired for the detection of typhoid carriers or for the proper investigation of some condition endangering the public health, the circumstances should be placed before the Secretary of the State Board of Health in Sacramento.

DISEASED TISSUES AND MISCELLANEOUS PATHOLOGICAL EXAMINATIONS.

Tissue specimens are not examined in the laboratory for diagnosis except in connection with special investigations. Examinations of pathological material are not made except as indicated in this circular. The members of the laboratory staff do not carry on private work for compensation.

WATER EXAMINATIONS.

Requests for the examination of water supplies should be made to the Secretary of the State Board of Health at Sacramento. Investigations of water supplies are made only when they are of importance in tracing or preventing the spread of some water-borne disease. When so instructed by the Secretary, the Director of the State Hygienic Laboratory will send the necessary containers and directions, express collect. Samples must be properly taken and shipped packed in ice.

MILK.

Examinations of milk cannot be made to advantage at a distance from the source of supply. Therefore this work is not done at the State Hygienic Laboratory except in connection with special examinations. Samples of milk should not be sent to the laboratory for bacteriological examination unless under instructions from the Secretary of the State Board of Health or the Director of the Laboratory.

Efficiency of Disinfectants.

Requests for the examination of disinfectants and insecticides should be made to the Secretary of the State Board of Health at Sacramento. Investigations of this nature are made only in connection with special work in aiding administrative health officials, or for State institutions. When so instructed by the Secretary, the Director will make tests to determine phenol coefficients with the *bacillus typhosus*, and such other tests as may be required.

The Branch Laboratories.

Four branch laboratories are maintained by the bureau as follows:

1. *Coast Counties Branch.* Located at Berkeley and serving the following counties: Alameda, Contra Costa, Del Norte, Humboldt, Lake, Marin, Mendocino, Monterey, Napa, San Benito, San Francisco, San Luis Obispo, San Mateo, Santa Clara, Santa Cruz, and Solano.

2. *Northern California Branch.* Located at Sacramento and serving the following counties: Alpine, Amador, Butte, Calaveras, Colusa, El Dorado, Glenn, Lassen, Modoc, Mono, Nevada, Placer, Sacramento, San Joaquin, Shasta, Sierra, Siskiyou, Sutter, Tehama, Trinity, Yolo, and Yuba.

3. *San Joaquin Valley Branch.* Located at Fresno and serving the

following counties: Fresno, Kern, Kings, Madera, Mariposa, Merced, Stanislaus, Tulare, and Tuolumne.

4. *Southern California Branch.* Located at Los Angeles and serving the following counties: Imperial, Inyo, Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Santa Barbara.

Regulations for Using the Branch Laboratories.

All specimens examined must come from persons or animals within the State of California. The services of the branch laboratories are available only in connection with cases outside of those municipalities which have laboratories for the performance of the kinds of examinations needed. No charge is made for examinations by the State Hygienic Laboratory.

Specimens must be taken and forwarded by health officers, physicians, or (where animals are concerned) by veterinarians.

Specimens should not be sent through the mails except in the regular mailing outfits furnished by the State Board of Health. The United States postal laws and regulations strictly prescribe the kinds of containers which may be used in mailing bacteriological specimens. Infractions of these laws result in seizure of the packages and investigation by the postal authorities. Mailing outfits may be obtained from the main laboratory in Berkeley or from any of the drug stores which have been appointed official depositories for the outfits of the laboratory.

Reports of the results are sent to the senders of the specimens, and, when positive evidence of communicable disease is obtained, to the local health officers. On request the results are transmitted, charges collect, by telephone or telegraph.

DEPOSITORIES FOR MAILING OUTFITS.

The bureau has established in drug stores of the larger towns of California, stations for the distribution of its mailing outfits to health officers, physicians, and veterinarians. These outfits are for use only in sending specimens to the main laboratory or one of its branches. Mailing outfits may be obtained for forwarding sputum from suspected cases of tuberculosis, cultures and swabs from suspected cases of diphtheria, dried blood from suspected cases of typhoid fever, smears of blood from suspected cases of malaria, smears of pus from suspected cases of gonococcus infection, and feces from suspected cases of hook-worm disease.

The list of drug stores serving as depositories as published below will be republished with additions and corrections from time to time in the Monthly Bulletin of the State Board of Health.

Examinations for the following diseases are made in the branch laboratories:

TUBERCULOSIS.

Sputum from individuals suspected of having tuberculosis will be examined for the presence of tubercle bacilli. Examinations of milk, tissues, pus, exudates, feces, and urine for evidences of tuberculosis are not made by the laboratory except in connection with special investigations ordered by the Board. Sputum should not be sent except in the regular containers furnished by the laboratory, and the blanks sent with the mailing outfits must be filled out and forwarded with the specimen.

DIPHTHERIA.

The mailing outfit for examination with regard to diphtheria contains two sterile swabs, a tube of culture medium, directions, and a data card. The swabs as well as the culture should always be returned to the laboratory for examination.

Old, dry, or contaminated culture tubes should be exchanged for fresh ones. The depositories are expected to keep fresh tubes on hand and thus to help do away with the use of old or dry culture medium. In all urgent cases physicians should request that the result be telephoned or telegraphed.

TYPHOID.

Outfits and directions are furnished for the sending of dried drops of blood for examination for the Widal reaction of typhoid fever. Several drops should be obtained and allowed to dry on the aluminum foil of the outfit.

MALARIA.

Mailing outfits containing two glass slides, directions, and data card are furnished for transmitting smears of blood for examination for the organism of malaria. Frequently the blood can not be examined owing to carelessness in preparing the blood film. Directions should be closely followed. Quinine should be withheld until the specimen has been secured.

GONOCOCCUS INFECTIONS.

Outfits similar to those furnished for examinations for malaria are sent with directions for obtaining specimens from cases of suspected gonococcus infection.

PASTEUR TREATMENT FOR THE PREVENTION OF DEVELOPMENT OF RABIES.

If human beings have been bitten by rabid animals the wound should be cauterized immediately by the nearest physician, preferably with nitric acid. Arrangements should then be made at once for beginning the Pasteur treatment for the prevention of rabies. Persons who are able to pay for treatment should arrange with their physicians to have the necessary material purchased and administered.

Each person who is unable to pay the expenses connected with private treatment should report immediately to the local health officer, who will telegraph the Secretary of the State Board of Health for permission to have the patient treated free of charge at the nearest branch of the Hygienic Laboratory. This telegram must be followed by a letter of explanation stating why the State should assume the cost of treatment, and why the treatment is necessary. The Secretary will reply immediately by telegram, giving directions for further procedure. If the Director of the Branch Laboratory to which the patient is assigned agrees that treatment is advisable, the free government virus will be administered without charge. Persons taking the treatment at State expense must defray their own living expenses while boarding near the laboratory.

The Portable Field Equipment.

The bureau is provided with an emergency field laboratory equipment which may be transferred promptly to any part of the State in which may develop an important epidemic of any communicable disease requiring laboratory methods in determining its source and control.

This equipment will include when completed a portable hypochlorite disinfecting plant for the immediate disinfection of the water supply of any town which calls upon the Board for assistance in controlling a water-borne disease.

Requests for State assistance through the use of this emergency equipment of the bureau should be made directly to the Secretary of the Board.

Educational Work of the Bureau of Hygienic Laboratory.

In coöperation with the Bureau of Publications and Health Information, this bureau keeps in circulation sixty demonstration outfits, each consisting of a box containing microscopic slides and cultures illustrating public health problems for the use of teachers and lecturers. Plates showing bacteria from public drinking cups, fly tracks, dirty milk, and dust, are included in the outfit.

In addition to the demonstration outfits, the bureau loans to physicians standard slides and killed cultures of the more important pathogenic bacteria and other parasites which may be readily examined for in the routine work of the general practitioner.

The members of the laboratory staff are assigned, as other duties permit, to lecture duty in connection with the various welfare movements that are interested in the prevention of disease.

All requests for the use of the demonstration outfits or for lectures should be made to the Secretary of the State Board of Health.

Personnel and Addresses of the Bureau Staff.

The Director of the bureau is Dr. Wilbur A. Sawyer, Berkeley. All materials intended for the main laboratory should be addressed as follows:

W. A. SAWYER, M.D., Director,
State Hygienic Laboratory,
Berkeley, California.

The Acting Chief Bacteriologist is Miss Esther M. Skolfield, Berkeley. All materials intended for the Coast Counties Branch of the laboratory should be addressed:

COAST COUNTIES BRANCH,
State Hygienic Laboratory,
Berkeley, California.

The Division Bacteriologist for Northern California is Dr. F. F. Gundrum, Sacramento. All materials intended for the Northern California branch of the laboratory should be addressed:

NORTHERN CALIFORNIA BRANCH,
State Hygienic Laboratory,
1021 Tenth Street,
Sacramento, California.

The Division Bacteriologist for the San Joaquin Valley is Dr. W. W. Cross, Fresno. All materials intended for the San Joaquin Valley branch of the laboratory should be addressed:

SAN JOAQUIN VALLEY BRANCH,
State Hygienic Laboratory,
32 Patterson Block,
Fresno, California.

The Division Bacteriologist for Southern California is Dr. Stanley P. Black, Los Angeles. All materials intended for the Southern California branch of the laboratory should be addressed:

SOUTHERN CALIFORNIA BRANCH,
State Hygienic Laboratory,
423 Auditorium Building,
Los Angeles, California.

The Secretary and executive officer of the State Board of Health is Dr. William F. Snow, Sacramento. Address all general communications and special requests to:

THE SECRETARY, CALIFORNIA STATE BOARD OF HEALTH,
Sacramento,
California.

Depositories of the State Hygienic Laboratory.

The drug stores listed below are serving as stations for the free distribution of the mailing outfits of the laboratory to Health Officers, physicians, and veterinarians. The list is corrected to January 15, 1912.

County.	Town.	Drug store.
Alameda	Haywards	Rogers' Pharmacy
	Livermore	McKown & Mess
	Niles	Sneden's Pharmacy
	Oakland	Philip & Philip
	Pleasanton	Peter Rock
	San Leandro	O. J. Lynch's Pharmacy
Amador	Ione	Model Drug Store
Butte	Chico	Ben Hastings Pharmacy
	Gridley	The Gridley Pharmacy
Colusa	Arbuckle	Chas. G. Stinson
	Colusa	Oscar Robinson
	Maxwell	Fouch's Drug Store
	Williams	J. F. Fouch
Contra Costa	Antioch	Palace Drug Co.
	Concord	C. W. Klein
	Crockett	Crockett Drug Co.
	Pinole	Pinole Drug Co.
	Richmond	Ferguson's Drug Store
Del Norte	Crescent City	Bowman's Drug Store
Fresno	Fresno	San Joaquin Drug Co.
	Kingsburg	Reliable Pharmacy
	Reedley	Reedley Drug Co.
	Sanger	O. A. Brehler
	Selma	Dusy & Sawrie

Depositories—Continued.

County.	Town.	Drug store.
Glenn	Orland	Birch & Co.
Humboldt	Arcata	Skinner Duprey Drug Co.
	Fortuna	Bowman's Drug Store
Imperial	Brawley	Fulton's Pharmacy
	Calexico	Aitken's Pharmacy
	Holtville	Holtville Pharmacy
Kern	East Bakersfield	Kern Drug Co.
	Delano	Ramsay's Pharmacy
	Fellows	Owl Drug Store
	McKittrick	McKittrick Pharmacy
	Taft	Taft Pharmacy
	Tehachapi	Nicholson's Pharmacy
Lake	Kelseyville	Pond Drug Store
	Lakeport	Meddaugh's Drug Store
	Lower Lake	Dr. H. P. Weiper
	Middletown	Middletown Drug Store
Lassen	Susanville	J. P. Spaulding
Los Angeles	Alhambra	F. B. Elwood
	Artesia	Artesia Pharmacy
	Azusa	Dolley Drug Co.
	Burbank	Burbank Pharmacy
	Claremont	College Drug Store
	Compton	Delmar Pharmacy
	Covina	W. W. Nash
	Downey	The Haygood Pharmacy
	Eagle Rock	Eagle Rock Drug Co.
	El Monte	El Monte Drug Store
	Huntington Park	Batcheller's Pharmacy
	Inglewood	Sollenberger's Drug Store
	Monrovia	Thos. Neville
	Ocean Park	Moody's Drug Store
	Tropico	Story's Pharmacy
Marin	Belvedere	Belvedere Pharmacy
	Mill Valley	Lockwood Pharmacy
	San Anselmo	Poppy Pharmacy
	San Rafael	Day's Pharmacy
	Sausalito	Sausalito Drug Co.
Mendocino	Fort Bragg	Pacific Drug Store
	Mendocino	C. O. Packard Drug Store
	Ukiah	Gibson's Pharmacy
	Willits	Rex Drug Co.
Merced	Dos Palos	Dos Palos Drug Store
	Los Banos	Bertholf Drug Store
	Merced	Merced Drug Co.
Monterey	Monterey	Palace Drug Co.
	Salinas	Krough's Drug Store
Nevada	Grass Valley	Loutzenheiser's Pharmacy
	Nevada City	Dickerman Pharmacy
Orange	Anaheim	Mullinix Drug Store
	Orange	K. E. Watson Co.
	Fullerton	Finch's Drug Store
	Santa Ana	Rowley Drug Co.
Placer	Auburn	J. G. McLaughlin
	Colfax	J. L. Butler & Son
	Dutch Flat	Dr. J. H. Johnston
	Lincoln	Ingram's Drug Store
	Loomis	Loomis Pharmacy

Depositories—Continued.

County.	Town	Drug store
Plumas	Quincy	Quincy Drug Store
Riverside	Banning	Banning Drug Store
	Beaumont	Robert Fulton
	Hemet	Wedemeyer's Pharmacy
	Riverside	F. A. Gardner & Co.
Sacramento	Elk Grove	"Ye Medicine Shop"
	Folsom	S. H. & F. P. Burnham
San Bernardino	Chino	Reher's Pharmacy
	Colton	Colton Pharmacy
	Redlands	Mont. P. Chubb Drug Co.
	San Bernardino	Owl Drug Co.
San Diego	Chula Vista	Wigginton's Pharmacy
	Escondido	Baldrige Drug Co.
	La Mesa	La Mesa Drug Store
	Oceanside	Exton & Nichols
	Ramona	Thos. Jerman
	San Diego	Ferris & Ferris
San Joaquin	Stockton	Eagle Drug Store
San Luis Obispo	Arroyo Grande	W. A. Conrad, Jr.
	Cambria	People's Drug Store
	Oceano	Oceano Trading Co.
	Paso Robles	W. C. Bennett
	San Luis Obispo	J. W. Smith
Santa Clara	Los Gatos	Geo. A. Green's Pharmacy
	Mountain View	E. T. Johnson
	San Jose	Curtis & Henkle Drug Co.
	Santa Clara	Madden's Pharmacy
Santa Cruz	Santa Cruz	Palmer Drug Co.
	Watsonville	Steinhauser & Eaton
Shasta	Redding	Powell Pharmacy Co.
Sierra	Loyalton	Loyalton Drug Co.
Siskiyou	Dunsmuir	Red Cross Drug Store
	Etna Mills	W. J. Balfrey
	Sisson	Mt. Shasta Pharmacy
	Yreka	Avery Drug Co.
Solano	Benicia	Benicia Pharmacy
	Dixon	California Drug Store
	Rio Vista	Rio Vista Pharmacy
	Suisun	Criterion Drug Store
	Vacaville	Reid Drug Co.
	Vallejo	Vallejo Drug Co.
Sonoma	Healdsburg	Rathke's Pharmacy
	Petaluma	Young-Herold Drug Co.
Stanislaus	Ceres	Ceres Drug Co.
	Modesto	Maze Drug Store
	Newman	Pioneer Drug Store
	Oakdale	Endicott's Drug Store
	Turlock	Turlock Drug Co.
Tehama	Red Bluff	Elmore Pharmacy
Trinity	Weaverville	D. B. Fields, M.D.

Depositories—Continued.

County.	Town.	Drug store.
Tulare	Dinuba	McCracken's Pharmacy
	Exeter	Mixter Pharmacy
	Lindsay	Lindsay Drug Co.
	Tulare	E. Allen Test
	Visalia	J. M. Boynton
Tuolumne	Sonora	Union Drug Store
	Tuolumne	Bigelow's Drug Store
Ventura	Nordhoff	Ojai Drug Store
	Santa Paula	Cauch's Drug Store
	Ventura	Pioneer Drug Store
Yolo	Winters	Day's Drug Store
	Woodland	John V. Leitchold
Yuba	Marysville	Horning Drug Co.
	Wheatland	Wheatland Pharmacy

LIST OF COUNTY HEALTH OFFICERS.

County.	Health Officer.	Address.
Alameda	Dr. C. L. McKown	Niles
Alpine*	County Recorder Frank Smith	Markleeville
Amador	Dr. E. E. Endicott	Jackson
Butte	Dr. L. Q. Thompson	Gridley
Calaveras	Dr. E. W. Weirich	Angels Camp
Colusa	Dr. C. A. Poage	Colusa
Contra Costa	Dr. F. S. Gregory	Pittsburg
Del Norte	Dr. E. M. Fine	Crescent City
El Dorado	Dr. L. M. Leisenring	Placerville
Fresno	Dr. W. T. Burks	Fresno
Glenn	Dr. J. A. Randolph	Willows
Humboldt	Dr. E. H. Bryant	Eureka
Imperial	Dr. Virgil McCoombs	El Centro
Inyo	Dr. I. J. Woodin	Independence
Kern	Dr. G. M. Bumgarner	Bakersfield
Kings	Dr. Ralph Motherol	Hanford
Lake	Dr. W. E. Upton	Kelseyville
Lassen	Dr. W. E. Dozier	Susanville
Los Angeles	Dr. E. O. Sawyer	Los Angeles
Madera	Dr. Mary R. Butin	Madera
Marin	Dr. J. H. Kuser	Novato
Mariposa	Dr. F. L. Wright	Mariposa
Mendocino	Dr. J. Liftchild	Ukiah
Merced	Dr. C. H. Castle	Merced
Modoc	Dr. John Stille	Alturas
Mono*	County Recorder Geo. Delury	Bridgeport
Monterey	Dr. Garth Parker	Salinas
Napa	Dr. E. Z. Hennessey	Napa
Nevada	Dr. Carl P. Jones	Grass Valley
Orange	Dr. John Wehrly	Santa Ana
Placer	Dr. O. L. Barton	Loomis
Plumas	Dr. F. D. Walsh	Quincy
Riverside	Dr. George E. Tucker	Riverside
Sacramento	Dr. Hugh Beattie	Elk Grove
San Benito	Dr. J. M. O'Donnell	Hollister
San Bernardino	Dr. Philip M. Savage	San Bernardino
San Diego	Dr. Nathan Hunt	San Diego
San Francisco	Dr. R. G. Brodrick	San Francisco
San Joaquin	Dr. Wm. Friedberger	Stockton
San Luis Obispo	Dr. H. M. Cox	San Luis Obispo
San Mateo	Dr. W. G. Beattie	Colma
Santa Barbara	Dr. J. C. Bainbridge	Santa Barbara
Santa Clara	Dr. William Simpson	San Jose
Santa Cruz		Santa Cruz
Shasta	Dr. F. Stabel	Redding
Sierra	Dr. R. B. Davy	Downieville
Siskiyou	Dr. F. J. McNulty	Yreka
Solano	Dr. S. G. Bransford	Suisun
Sonoma	Dr. P. A. Meneray	Santa Rosa
Stanislaus	Dr. F. R. De Lappe	Modesto
Sutter	Dr. J. McFadyen	Yuba City
Tehama	Dr. J. S. Cameron	Red Bluff
Trinity	Dr. D. B. Fields	Weaverville
Tulare	Dr. M. E. Pettit	Visalia
Tuolumne	Dr. Wm. Lyman Hood	Sonora
Ventura	Dr. A. A. Maulhardt	Oxnard
Yolo	Dr. W. J. Blevins	Woodland
Yuba	Dr. J. H. Barr	Marysville

A SUPPLEMENTARY NOTE BY THE SECRETARY.

In publishing this bulletin separate it has been found impracticable to include the revised list of city health officers, but all persons living in towns and cities not under the jurisdiction of the County Health Officer because of the appointment of a local officer, will know the name and office address of the latter.

Many persons do not know that the laws of California make it mandatory upon every person who knows of the existence of a case of communicable disease to report the case to the local health officer; or that the law furthermore provides that any person who wilfully exposes any one to a communicable disease is guilty of a misdemeanor. Extracts from the health laws of California covering these and related provisions are printed below for convenient reference by health officers and managers of the drug stores serving as depositories.

The legislature shall provide, by law, for the maintenance and efficiency of a state board of health. [*Constitution of 1879, Art. XV, Sec. 14.*]

The state board of health shall examine into the causes of communicable diseases in man and domestic animals occurring or likely to occur in this state.

It may quarantine or isolate, inspect and disinfect persons, animals, property and things of whatever nature, and houses, rooms, places, cities or localities, whenever in the judgment of said board or pending its meetings, whenever in the judgment of its executive officer such action shall be deemed necessary to protect or preserve the public health; and said board may destroy or cause to be destroyed, bedding, carpets, household goods, furnishing and materials, clothing or animals, when in the judgment of said board or that of its executive officer such clothing, furnishings, bedding, goods, materials or animals are an imminent menace to the public health.

It may establish and maintain places of quarantine or isolation. [*Pol. Code, Sec. 2979.*]

SECTION 13. The following rules and requirements shall be strictly observed in all cases of quarantine subject, however, to such changes and modifications as the state board of health, or its secretary may otherwise require and direct.

Rule 1. Every county, city and county, city, or town board of health, or chief executive health officer thereof, upon receiving information of the existence of such diseases within its or his jurisdiction, must immediately quarantine each and every case of Asiatic cholera, yellow fever, typhus fever, plague, smallpox, scarlet fever, diphtheria, (and such other contagious or infectious diseases) as may from time to time be declared quarantinable, and in addition to their local rules and regulations shall follow all general and special rules, regulations, and orders of the state board of health, or its secretary.

Said health boards or officers must, within twenty-four hours after quarantine, report fully, in writing, to the secretary of the state board of health, all of such cases quarantined; *provided, however*, that said health officers shall immediately report by telegraph to said secretary of the state board of health every case discovered or known of plague, Asiatic cholera, yellow fever or typhus fever, and after investigation and within twenty-four hours shall report the cause, source and extent of contagion and infection, and all acts done and measures adopted in each case, and shall make such further reports as the secretary of the state board of health may require.

Rule 2. In addition to the list of quarantinable diseases given in rule 1 of this section the following is a partial list of contagious, infectious and communicable diseases, all of which, though not required to be quarantined, must be promptly reported in writing to the state board

of health, or its secretary, by the said local health boards or chief executive health officers, viz: chicken-pox, erysipelas, pneumonia, uncinariasis or hookworm, epidemic cerebro-spinal meningitis, trachoma, whooping-cough, mumps, dengue, dysentery, tuberculosis, typhoid fever, tetanus, malaria, leprosy, measles, German measles, glanders and anthrax affecting human beings, rabies, pellagra, beriberi, syphilis, gonococcus infection, and poliomyelitis, and any disease which appears to have become epidemic. The diseases last above enumerated, and such others as from time to time may be added thereto by the state board of health or its secretary, shall be quarantined whenever in the opinion of the state board of health or its secretary such action is necessary to protect the public health, and shall be isolated whenever in the opinion of the state board of health, its secretary, or the local board of health or health officer, isolation is necessary to protect the public health. This list can be changed at any time by the state board of health or its secretary. [*Chapter 339, Statutes 1911.*]

SEC. 21. Any person violating any of the provisions of this act, whether acting for himself, or as the agent or servant of another person, or of a firm, company or corporation, or as an officer, agent, employee, or representative of any municipal corporation, or of the state shall be guilty of a misdemeanor, and upon conviction shall be punished by a fine of not less than twenty-five nor more than five hundred dollars, or by imprisonment for a term of not more than ninety days, or by both such fine and imprisonment. Each day that in violation of any provision of this act shall continue, and each day that any thing forbidden by the terms hereof to be erected, constructed, maintained, operated or permitted, shall continue to exist, or be maintained, operated or permitted, shall constitute a separate offense. [*Chapter 339, Statutes 1911.*]

SEC. 16. All physicians, nurses, clergymen, attendants, owners, proprietors, managers, employees, and persons living in or visiting any sick person in any hotel, lodging-house, house, building, office, structure, or other place where any person shall be ill of any infectious, contagious, or communicable disease, shall promptly report such fact to the county, city and county, city, or other local health board or health officer, together with the name of the person, if known, and place where such person is confined, and nature of the disease, if known. [*Public Health Act, March 23, 1907.*]

SEC. 21. Any person violating any of the provisions of this act, whether acting for himself, or as the agent or servant of another person, or of a firm, company or corporation, shall be guilty of a misdemeanor, and upon conviction shall be punished as provided in section nineteen of the Penal Code of the State of California. [*Public Health Act, March 23, 1907.*]

SEC. 373a. Every person who wilfully exposes himself or another afflicted with any contagious or infectious disease, in any public place or thoroughfare, except in his necessary removal in a manner the least dangerous to the public health, is guilty of a misdemeanor. [*Penal Code, Sec. 394.*]

SEC. 2. Any person violating any of the provisions of this act shall be guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine of not less than fifty, nor more than five hundred dollars, or imprisoned not more than six months, or by both such fine and imprisonment. [*Statutes of 1909, page 100.*]

AN INTENSIVE ANTI-MOSQUITO CAMPAIGN.

One of the most serious diseases, in its general effects upon the people of the Sacramento and San Joaquin valleys, is malaria. During the past two years a number of cities and residential communities in these valleys have waged active campaigns against the anopheles mosquito, which is the agency for transmitting the disease from infected persons to others. The most favorable places for anopheles to breed are overflowed areas in which the water is shallow enough to allow grass and other low vegetation to be barely covered. Such conditions are often produced by breaks in irrigation ditches (such as the one shown in the accompanying plate), water supply pipes and improperly channelled creeks. Marshy districts in which



the water is just below the surface are made dangerous through the hoof marks of cattle and horses. Reservoirs, dredger ponds, and sluggish streams are not often the breeding places of this species of mosquito, unless they are badly kept and permit the accumulation of vegetation along the edges. A clean pond, with sharp, deeply cut banks, need not be a menace as a mosquito breeder.

It is to be hoped that a very vigorous campaign for the eradication of mosquito breeding places will be begun without delay. If the knowledge that malaria is spread only by this single species of mosquito could be brought home to every land owner and resident in the malarial districts of California, a very few years would suffice to make this disease a matter of history in the records of the State Board of Health.

LIST OF CITY HEALTH OFFICERS.

City.	Health Officer.	City.	Health Officer.
Alameda.....	Dr. A. Hieronymus	Hollister.....	Dr. R. G. Curtis
Albany.....	Dr. Robt. Hector	Hollywood.....	E. O. Palmer
Alhambra.....	Dr. F. E. Corey	Huntington Beach.....	C. F. Sorenson
Alturas.....	Dr. John Stille	Huntington Park.....	Dr. W. Thompson
Alviso.....		Imperial.....	Dr. C. E. Standlee
Anaheim.....	Dr. J. L. Beebe	Inglewood.....	Dr. H. A. Putnam
Antioch.....	Dr. W. S. George	Jackson.....	F. V. Sanguinetti
Arcadia.....		Kennett.....	Dr. J. P. Sandholdt
Arcata.....	Dr. G. W. McKinnon	Kernville.....	
Arroyo Grande.....		King City.....	
Auburn.....	Jas. H. Breslin	Kingsburg.....	
Azusa.....	Dr. L. W. Atkinson	Lakeport.....	Jabez Banks
Bakersfield.....	S. D. Mullins	Larkspur.....	
Belvedere.....	Dr. Florence Scott	Lincoln.....	F. R. Elder
Benicia.....	Dr. W. L. McFarland	Lindsay.....	Dr. W. W. Tourtillot
Berkeley.....	Dr. J. J. Benton	Livermore.....	Dr. H. G. McGill
Biggs.....	Dr. B. Caldwell	Lodi.....	Dr. F. W. Colman
Bishop.....	Dr. J. W. Shute	Long Beach.....	Dr. W. H. Newman
Blue Lake.....	Dr. G. N. Wood	Lompoc.....	
Brawley.....	Dr. L. L. Lindsey	Lordsburg.....	Dr. J. E. Hubble
Burbank.....		Los Angeles.....	Dr. L. M. Powers
Burlingame.....		Los Banos.....	Dr. J. L. McClelland
Calistoga.....		Los Gatos.....	Dr. C. K. Small
Calexico.....	Dr. Wm. F. Smith	Loyalton.....	Dr. G. L. Coates
Chico.....	G. H. Taylor	Madera.....	Dr. Mary R. Butin
Chino.....	Dr. John W. Callnon	Maricopa.....	Dr. H. N. Taylor
Claremont.....		Martinez.....	Dr. E. E. Brown
Cloverdale.....	F. P. Conner	Marysville.....	Wm. Meek
Coalinga.....	Dr. H. S. Warren	Mayfield.....	Dr. F. M. Selbert
Colfax.....	Silas Ulery	McCloud.....	Dr. R. T. Legge
Colton.....	Dr. J. A. Champion	McKittrick.....	G. M. Chitwood
Colusa.....	Dr. C. A. Poage	Merced.....	Dr. C. H. Castle
Compton.....	J. W. Stone	Mill Valley.....	Capt. M. Staples
Concord.....	Dr. F. F. Neff	Modesto.....	Dr. J. J. Knowlton
Coram.....	Geo. H. Thomas	Montague.....	
Corning.....	Dr. W. F. Maggard	Mojave.....	A. Smith
Corona.....	Dr. W. H. Chapman	Monrovia.....	Dr. R. D. Adams
Coronado.....	Dr. Raffaele Lorini	Monterey.....	Edward Allen
Cottonwood.....	Dr. A. B. Gilliland	Morgan Hill.....	Dr. D. W. Watt
Covina.....		Mountain View.....	Dr. A. H. McFarlane
Crescent City.....		Napa.....	J. D. Treadway
Daly City.....		National City.....	Dr. T. F. Johnson
Davis.....	Dr. W. E. Bates	Nevada City.....	Hugh Murchie
Delano.....	Dr. H. Hildreth	Newman.....	Dr. H. V. Armistead
Dinuba.....	Dr. Wm. Whittington	Newport Beach.....	
Dorris.....	Dr. A. A. Atkinson	Oakdale.....	Elmer E. Endicott
Dixon.....	W. C. Rhem	Oakland.....	Dr. E. N. Ewer
Dunsmuir.....	Dr. E. J. Cornish	Ocean Side.....	Dr. R. S. Reid
Eagle Rock.....	Dr. C. H. Phinney	Ocean Park.....	Dr. W. M. Kendall
Elsinore.....	Dr. Hugh Walker	Ontario.....	Dr. C. S. Orr
Emeryville.....	Dr. A. T. Drennan	Orange.....	Dr. F. L. Champline
Escondido.....	Dr. David Crise	Orland.....	Dr. S. Goldman
Etna Mills.....	Dr. W. H. Haines	Oroville.....	Dr. W. F. Gates
Eureka.....	Dr. L. A. Wing	Oxnard.....	Dr. Ralph W. Avery
Exeter.....	Dr. A. D. McLean	Pacific Grove.....	E. B. Richi
Fairfield.....	Dr. S. G. Bransford	Palo Alto.....	Hubert O. Jenkins
Ferndale.....	Dr. C. A. Phelan	Pasadena.....	Dr. Stanley P. Black
Fort Bragg.....	Dr. L. C. Gregory	Paso Robles.....	B. B. Pierce
Fort Jones.....	Thos. Bransom	Perris.....	A. F. Hardy
Fortuna.....	Dr. Geo. S. Loveren	Petaluma.....	Dr. J. M. Proctor
Fowler.....	Dr. W. T. Crawford	Pinole.....	J. Chattleton
Fresno.....	Dr. Geo. H. Alken	Pittsburg.....	Dr. F. S. Gregory
Fullerton.....	Dr. F. J. Gobar	Placerville.....	P. J. Hall
Gilroy.....	Dr. John A. Clark	Pleasanton.....	Dr. S. J. Wells
Glendale.....	Dr. R. E. Chase	Pomona.....	Dr. T. J. Wilson
Grass Valley.....	Paul E. Sears	Porterville.....	Dr. O. C. Higgins
Gridley.....	Dr. L. L. Thompson	Piedmont.....	Geo. T. Burtchael
Hanford.....	Dr. R. W. Musgrave	Point Arena.....	
Hayward.....	Dr. G. E. Reynolds	Potter Valley.....	
Healdsburg.....	Dr. J. W. Seawell	Randsburg.....	E. B. McGinnes
Hemet.....	Dr. A. B. Eadie	Red Bluff.....	Dr. F. J. Bailey
Hermosa Beach.....	E. McCaskey	Redding.....	I. D. Poole
Hercules.....	Dr. M. L. Fernandez	Redlands.....	Dr. Chas. E. Ide
Hillsborough.....		Redondo Beach.....	Dr. D. R. Hancock

CITY HEALTH OFFICERS—Continued.

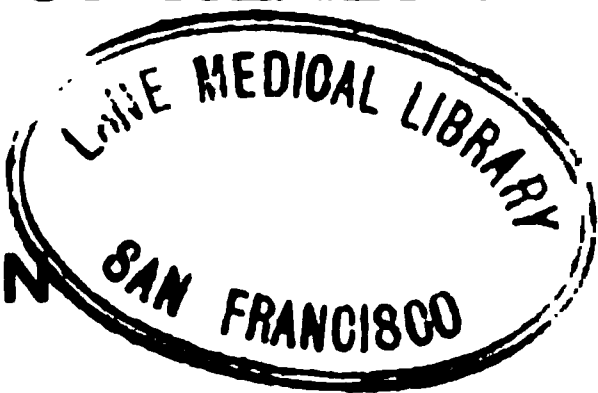
City.	Health Officer.	City.	Health Officer.
Redwood City.....	Dr. J. L. Ross	Sierra Madre.....	Dr. R. H. Mackerras
Richmond.....	Dr. Chas. R. Blake	Sebastopol.....	Dr. J. J. Keating
Rio Vista.....	Dr. A. J. McKinnon	Slason.....	
Riverside.....	Dr. Thos. R. Griffith	South Pasadena.....	Dr. C. A. Whitting
Rocklin.....	Dr. S. P. Rugg	South San Francisco.....	Dr. H. G. Plymire
Roseville.....	Dr. R. H. Ashby	Stockton.....	Dr. R. T. McGurk
Ross.....		Susanville.....	Dr. E. S. Drucks
Sacramento.....	Dr. Wm. K. Lindsay	Sulsun.....	
Saint Helena.....	G. B. Anderson	Stanton.....	
Sallinas.....	S. A. McCollum	Sonoma.....	
San Anselmo.....	Dr. Chipman	Taft.....	E. G. Wood
San Bernardino.....	Dr. C. V. McConico	Tehachapi.....	R. M. Spencer
San Diego.....	Dr. F. H. Mead	Tracy.....	Dr. J. G. Murrell
San Francisco.....	Dr. R. G. Brodrick	Tehama.....	
Sanger.....	Dr. T. F. Madden	Tropico.....	
San Jose.....	Dr. M. F. Hopkins	Tulare.....	Dr. J. B. Rosson
San Jacinto.....	Thos. Lloyd	Turlock.....	Dr. E. L. Clough
San Juan.....	Henry Drake	Ukiah.....	Dr. J. Litchfield
San Luis Obispo.....	Dr. P. L. Rookledge	Upland.....	W. C. Redman
San Rafael.....	Dr. W. F. Jones	Vacaville.....	Dr. A. P. Finnan
San Mateo.....	Dr. S. G. Goodspeed	Vallejo.....	Dr. E. A. Peterson
San Leandro.....	P. C. Du Bois	Ventura.....	J. H. Hardey
Santa Ana.....	Dr. J. I. Clark	Visalia.....	Dr. M. L. Pettit
Santa Barbara.....	Dr. D. A. Conrad	Watsonville.....	Dr. F. H. Koepke
Santa Cruz.....	Dr. H. E. Piper	Watts.....	Dr. E. J. Richie
Santa Clara.....	Dr. J. F. Beattie	Wheatland.....	Dr. A. W. Foshay
Santa Monica.....	Dr. W. H. Parker	Whittier.....	Dr. W. H. Stokes
Santa Paula.....	Dr. G. E. ApLynne	Willits.....	Dr. W. L. Blodgett
Santa Rosa.....	Dr. Jackson Temple	Willows.....	Thos. Kinkade
Santa Maria.....	Dr. O. P. Paulding	Winters.....	Dr. J. H. Halle
Sausalito.....	Dr. A. H. Mays	Woodland.....	Peter Scott
Sawtelle.....	Dr. A. B. Hromadka	Yreka.....	E. W. Nolan
Selma.....	Dr. F. H. Williams	Yuba City.....	

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CALIFORNIA STATE BOARD OF HEALTH

MONTHLY BULLETIN



Vol. 7

FEBRUARY, 1912

No. 7

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REGULAR MEETINGS

The meetings of the California State Board of Health are held regularly the first Saturday of each month, but the quarterly meetings required by law to be held at the Capitol of the State are ordinarily designated as January, April, July, and October.

By courtesy of the University of California the Food and Drug Laboratory and the Hygienic Laboratory are located in University buildings at Berkeley, California.

Address all general communications to the
SECRETARY, Sacramento, California.

FEBRUARY BULLETIN.

COMMENTS.

Baseball and "Swat the Fly" Again.

Within another month baseball will be again occupying the full front page of the sporting edition, and the street car service on the lines to the ball grounds will have to be increased. This is as it should be. Baseball deserves a far higher rating as a health conservation measure than is accorded it.

Consider the game and the nation—the game commands the sustained interest of a fun-loving people who enjoy and understand its problems and the unexpected complications involved in each play made. It is played in the open, by men who must possess the physical fitness and sureness of mental action which are so much a part of all ideals of manhood. When teams are evenly matched the game is full of excitement and tense situations from start to finish; and, fortunately, it is a clean sport which has not been discredited, as boxing has been by the dishonest and repulsive practices of prize fighting. The nation emerges from the cold winter months of hard indoor work and feels all the thrills and unanalyzed longings for the countryside and muscular action which the awakening spring brings to every man, woman and child. It is fortunate and inevitable that the nation should go to the game.

Consider the individual—he has dropped for the moment his disappointments of the past and anxieties for the future; he is sitting on a bench in the elastic air and cheering sunshine; he has a sense comradeship and equality with other hundreds; he reacts to the muscular activity of making noise with his feet and his lungs; the traffic in oxygen and food supply for which his blood exists is brisk, and he goes home with a good appetite, and prepared for refreshing sleep. Altogether he has gained something of that feeling of well-being and contentment which enables a man to "come up smiling" each morning after the previous day's battle.

If some genius in setting the fashions could only establish the custom of a vigorous walk to the ball grounds and practice of the batter's skill through swatting flies at home after the game, the place of baseball in preventive medicine would be secure.

The season for swatting the fly is at hand, and undoubtedly will be evidenced by more active anti-fly campaigns than ever before, but as a sport the procedure lacks something of the popularity of baseball.

* * * * *

Oroville and Malaria Part Company.

It is not known how malaria came into California, but it is here. There is some evidence to suggest that it came with the influx of pioneers from the malaria-ridden lowlands of the Mississippi Valley, and finding anopheles mosquitoes and other favorable conditions, stayed and prospered as did the other pioneers. Oroville was one of the early towns that developed in response to the demands of the miners, and having

been established, grew because of its superb location and the richness of its contributing territory. But this location was also favorable for malaria. Innumerable stories have been told of the quinine cup on the mantel shelf, and reservations for "chill-day" in making all appointments. Such stories had a grim foundation in fact, and are still uncomfortably near the truth for some sections of California. But Oroville has applied the new discoveries of science, and is waging incessant and successful warfare on the disease. Under recent dates the following newspaper items have appeared:

Sacramento Union, Feb. 2, 1912.

OROVILLE FIGHT ON FLY TO START

**Chamber of Commerce Calls Meeting to
Launch a Campaign.**

OROVILLE (Butte Co.), Feb. 2.—Next Monday evening at 8:30 o'clock in the Chamber of Commerce rooms will be commenced the anti-mosquito and fly campaign, which is to be on the largest scale ever adopted in Northern California. The Oroville Civic Club will have charge of the campaign this year, and has invited W. W. Gingles, who headed the work last year, to deliver a lecture.

Colonel E. S. Weeden will also talk on beautifying the city. The club is calling upon every person in town to trim their trees and fix up their gardens so that the town can be made a veritable garden.

At the meeting of the civic section of the Monday Club yesterday the plan of establishing garbage cans throughout the town was indorsed and the section will petition the trustees to purchase these cans at the same time as the east siders.

The section also took up the matter of the erection of a sanitary fountain in the court house grounds. A committee will take this matter up with the supervisors in the near future.

Sacramento Bee, Feb. 22, 1912.

MALARIA HAS BEEN ERADICATED IN BUTTE

**Hospital Records Show Disease Has
Been Placed Under Control.**

OROVILLE (Butte Co.), Feb. 22.—That a decrease of 25 per cent in the number of patients cared for at the County Hospital this year is due to the increase in sanitary precautions taken by the general public, and to the mosquito campaign, is the statement of Superintendent M. L. Copeland, of that institution.

Copeland states that in previous years there have been approximately 100 patients cared for at the hospital, and that the average for the past year has been seventy-five. Twenty-five per cent heretofore, he says, were malarial patients. During the past year but four malarial cases have been treated at the hospital.

No settler need fear for his health or his investment in a community that makes the policy being followed by Oroville a permanent part of its plan of progress. Unfortunately, many such campaigns, like New Year resolutions, must be placed on probation a while before the stamp of final approval can be safely given, but Oroville has passed the stage of probation, and has proved that malaria can be made to "move on" into the undrained lowland haunts of the anopheles mosquito, and to those communities possessing less of the get-together spirit evinced by the residents of the county seat of Butte County.

At the present time only one county in California has above fifty deaths from malaria annually per thousand deaths from all causes. Five counties have from twenty-five to fifty; nine counties from ten to twenty-five; eighteen counties less than ten; and twenty-five counties have no deaths from malaria.

The excellent work of Oroville and neighboring towns is rapidly transferring Butte County from the top toward the bottom of this list. Other northern and central California towns and counties are carrying

on this work with equal assurance of ultimate success. It is to be hoped that the next legislature will again take up this important question with a view to making a state-wide attack on the last strongholds of malaria.

* * * * *

An Original Statistician.

The State Board of Health has an invaluable series of documents in its keeping, collected under the vital statistics laws, which require all original certificates of birth, death, and marriage to be filed with the Board. A few statistical facts are published each month summarizing these records, but a very large percentage of the economic and social value of these records is lost to the public, or, rather, undeveloped, because of lack of clerical assistance to make the necessary tabulations.

Some months ago a man announcing himself as Mr. Moody called upon the Secretary of the Board, requesting information and literature upon the statistics of divorce and remarriage in California. The meagre tabulations of the Board were shown to him; but he wanted some data about the ministers, and failing to find it, he took off his coat, so to speak, and began to work out his own statistics. From that day to the present Mr. Moody has worked hard upon his tabulation of the marriages of divorced persons in relation to the ministers and civil officers performing the ceremonies.

Many unusual requests for information reach the State Board, but this would seem especially peculiar without an explanation of the important movement behind it. Mr. Francis Miner Moody is a graduate of Yale University, an ordained minister, and the field secretary of the California State Commission on Marriage and Divorce, which is an interdenominational organization for the study of the divorce problem. Mr. Moody has shown himself by his careful work to be determined to speak authoritatively when he calls the clergy to account for their part in promoting the popularity of the "affinity" idea. Mr. Moody says, "The facile complicity of the clergy in this social evil is pitifully apparent, and surpasses our expectations many hundred-fold."

It of course remains to be seen whether Mr. Moody uses his statistics wisely as a basis for constructive criticism and stimulation of public interest in the proper use of divorce laws and remarriage practices, or whether he will indiscriminately publish his figures without explanatory data that can only be obtained by personal interviews with the ministers and officials who have performed the marriages.

However, regardless of creed or opinions concerning minor points of moral standards, most persons believe that divorce and uninvestigated remarriages present a real problem and a serious menace to the home. Comprehensive investigations of the subject, carried on with the scientific accuracy which characterizes this phase of the work of this commission, is greatly needed. The conservation of the home is vitally important to the future of the United States. Somehow or other our social conditions must be so remedied, that every normal boy and girl may look forward to early and happy marriage. Golden weddings should be the fashion.

**Placing California
on the Map.**

California is very much "on the map" in most particulars, but in the matter of registering births we are, to say the least, below the 90 per cent efficiency required by the United States Census Bureau as a basis for placing a state on the provisional registration map for births. Six years ago the State was recognized for a place on the registration area for deaths. It is the ambition of the State Board to see nineteen twelve mark the appearance of California on the registration area for births.

Statistical data on births constitute the basis for many most important deductions concerning the welfare and progress of any state. Every one is familiar with the alarm evinced by France in her steadily declining birth rate. The most influential and prominent men in California to-day are "boosters" for an increased population for the State, and are subscribing large sums of money for advertising in order to bring in more settlers. Yet because of incomplete birth returns they do not know how much they are accomplishing by their expenditures.

The last census shows that as an average the population of California has increased by one hundred thousand persons per year since nineteen hundred; and it is frequently estimated that every new settler means one thousand dollars per year in increased trade; but no one knows whether fifty thousand or more of this number may be due to native born children. Something like thirty thousand births are actually registered each year, but certain checks covering certain times and places indicate that less than fifty per cent of the births are being reported in parts of California. The Secretary of the State Board thinks the births reported may equal 75 per cent of the total. The statistician of the Board thinks this percentage should be higher, because he believes there are certain factors operative in California to produce a low birth-rate as compared with the rest of the United States. Nobody knows.

Wherever the birth-rate of a community or a country is low it indicates either that the returns are incomplete or that there are some unusual factors to be considered. Without trustworthy birth, marriage, and death statistics, neither a nation nor a community can prove many points which are important to the social and commercial life of that nation or community. The greatest need, however, for complete birth registration is the protection of the legal and social rights of the child. Those who have had it to do know that it is not an easy thing to prove legally that one is alive, if his birth certificate was not properly filed at the time he was born.

REPORT OF THE BUREAU OF ADMINISTRATION FOR
JANUARY, 1912.

JOHN F. LEINEN, Director.

During the month of January, 1912, the Bureau of Administration received 1,485 and sent 1,571 letters, making the total amount of correspondence handled 3,056. This does not include press clippings, pamphlets, or correspondence handled by the other bureaus of the Board.

Considerable new work has been begun in connection with inaugurating a new method of collecting morbidity returns at the end of every week.

The general routine work has been unusually heavy, due to outbreaks of smallpox and rabies.

Correspondence work for the Tuberculosis Commission was also greatly increased on account of the illness and resignation of the secretary to the Commission.

Tables are in preparation to show statistically the volume and character of the work required of this Bureau from month to month.

Under instructions from the Secretary a monthly report will be included in the future, as a brief résumé of the executive work done by the local boards in connection with administration problems of general interest to the public.

REPORT OF BUREAU OF VITAL STATISTICS FOR JANUARY.

GEORGE D. LESLIE, Statistician.

State Totals and Annual Rates.—The following table shows for California as a whole the birth, death, and marriage totals for the current and preceding months in comparison with those for the corresponding months of a year ago, as well as the annual rates per 1,000 population represented by the totals for the current and preceding months. The January rates are based on an estimated midyear population of 2,579,874 for California in 1912, the estimate having been made by the Census Bureau method with slight modifications.

Birth, Death, and Marriage Totals, with Annual Rates per 1,000 Population for Current and Preceding Months, for California: January.

	MONTHLY TOTAL.		Annual rate per 1,000 population.
January—	1912.	1911.	1912.
Births -----	3,059	2,601	14.0
Deaths -----	3,216	3,192	14.7
Marriages -----	2,430	1,981	11.1
December—	1911.	1910.	1911.
Births -----	3,275	2,842	15.5
Deaths -----	3,432	3,136	16.2
Marriages -----	2,652	2,405	12.5

The birth and marriage totals for January were much greater in 1912 than in 1911, while the January death totals were substantially the same each year.

County Totals.—The first table on the following page shows the monthly birth, death, and marriage totals for the principal counties of the State, the list being limited to counties having a population of at least 25,000 according to the Federal Census of 1910. Totals are also shown for San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), as well as for Los Angeles and Orange counties together.

City Totals.—The second table on the following page gives the birth and death totals for the principal freeholders' charter cities, the list including all chartered cities with a census population of at least 15,000 in 1910. The totals are given likewise for San Francisco in comparison with Oakland, Alameda, and Berkeley, the three cities adjoining one another on the east shore of San Francisco Bay, as well as for Los Angeles in comparison with neighboring chartered cities (Long Beach, Pasadena, Pomona, and Santa Monica).

Birth, Death, and Marriage Totals, for Principal Counties: January.

County.	JANUARY, 1912.		
	Births.	Deaths.	Marriages.
California -----	3,059	3,216	2,430
Counties of more than 25,000 population (1910):			
Alameda -----	266	347	225
Butte -----	36	41	15
Contra Costa -----	33	17	13
Fresno -----	158	100	73
Humboldt -----	47	41	19
Kern -----	34	38	44
Los Angeles -----	758	815	549
Marin -----	18	17	80
Orange -----	45	32	96
Riverside -----	29	39	24
Sacramento -----	104	115	98
San Bernardino -----	92	91	65
San Diego -----	75	110	85
San Francisco -----	596	649	521
San Joaquin -----	40	72	55
San Mateo -----	23	26	29
Santa Barbara -----	46	38	32
Santa Clara -----	123	114	70
Santa Cruz -----	30	31	16
Solano -----	33	24	13
Sonoma -----	36	43	22
Tulare -----	43	26	25
Selected groups:			
San Francisco and other bay counties -----	936	1,056	868
Los Angeles and Orange counties -----	803	847	645

Birth and Death Totals, for Principal Cities: January.

City.	JANUARY, 1912.	
	Births.	Deaths.
Freeholders' charter cities.....	1,913	2,088
Cities of more than 15,000 population (1910):		
Alameda	18	27
Berkeley	48	41
Fresno	55	45
Long Beach	19	30
Los Angeles	521	519
Oakland	184	214
Pasadena	33	56
Riverside	3	21
Sacramento	75	102
San Diego	46	93
San Francisco	596	649
San Jose	46	34
Stockton	19	40
Selected groups:		
San Francisco	596	649
Oakland, Alameda and Berkeley.....	250	282
Total, Bay cities	846	931
Los Angeles	521	519
Neighboring cities	102	121
Total	623	640

Causes of Death.—The following table shows the classification of deaths in California for the current month, in comparison with the preceding month:

Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths for Current and Preceding Months, for California: January.

Cause of death.	Deaths: January.	Proportion per 1,000.	
		January.	December.
ALL CAUSES	3,216	1,000.0	1,000.0
Typhoid fever	27	8.4	8.7
Malarial fever	7	2.2	1.4
Smallpox	1	0.3	1.2
Measles	13	4.0	1.2
Scarlet fever	8	2.5	1.2
Whooping-cough	6	1.9	3.5
Diphtheria and croup	13	4.0	7.0
Influenza	11	3.4	3.2
Other epidemic diseases	15	4.7	3.5
Tuberculosis of lungs	373	116.0	122.7
Tuberculosis of other organs.....	66	20.5	16.9
Cancer	183	56.9	51.0
Other general diseases	137	42.6	44.3
Meningitis	21	6.5	11.1
Other diseases of nervous system.....	262	81.5	84.8
Diseases of circulatory system.....	587	182.5	165.2
Pneumonia and broncho-pneumonia.....	398	123.7	113.0
Other diseases of respiratory system.....	90	28.0	26.5
Diarrhea and enteritis, under 2 years.....	52	16.2	23.9
Diarrhea and enteritis, 2 years and over.....	20	6.2	7.6
Other diseases of digestive system.....	199	61.9	57.7
Bright's disease and nephritis.....	169	52.6	65.5
Childbirth	27	8.4	10.8
Diseases of early infancy	100	31.1	30.3
Suicide	67	20.8	21.0
Other violence	208	64.7	72.5
All other causes	156	48.5	44.3

In January there were 587 deaths, or 18.3 per cent of all, from diseases of the circulatory system; 488, or 15.2 per cent, from pneumonia and other diseases of the respiratory system; and 439, or 13.7 per cent, from various forms of tuberculosis. Heart disease and pneumonia both led tuberculosis for this month.

Other notable causes of death were: Diseases of the nervous system, 283; violence, 275; diseases of digestive system, 271; cancer, 183; Bright's disease and nephritis, 169; and epidemic diseases, 101.

The deaths from epidemic diseases were as follows: Typhoid fever, 27; measles, 13; diphtheria and croup, likewise 13; influenza, 11; and all other epidemic diseases, 37.

The deaths from the leading epidemic diseases reported for the month were distributed by counties as follows:

TYPHOID FEVER.		MEASLES.		DIPHTHERIA AND CROUP.	
Alameda	4	Alameda	1	Alameda	2
Fresno	2	Fresno	1	Butte	1
Humboldt	1	San Francisco	11	Los Angeles	4
Kings	1	Total	13	Orange	1
Los Angeles	3			San Francisco	3
Sacramento	2			Santa Clara	1
San Benito	1			Tulare	1
San Bernardino	1			Total	13
San Diego	2				
San Francisco	6				
San Joaquin	1				
Santa Barbara	1				
Santa Cruz	1				
Stanislaus	1				
Total	27				

Geographic Divisions.—The following table presents data for geographic divisions, including the metropolitan area, or San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), in comparison with the rural counties of Northern and Central California:

Deaths from Main Classes of Diseases, for Geographic Divisions: January.

Geographic division.	DEATHS: JANUARY									
	All causes.	Epidemic diseases.	Tuberculosis (all forms).	Cancer.	Diseases of nervous system.	Diseases of circulatory system.	Diseases of respiratory system.	Diseases of digestive system.	Bright's disease and nephritis.	Violence.
THE STATE	3,216	101	439	183	283	587	488	271	169	275
Northern California	330	7	47	24	37	54	36	22	16	31
Coast counties	161	4	25	12	21	21	16	9	10	16
Interior counties	169	3	22	12	16	30	20	13	6	15
Central California	1,730	65	184	91	139	315	289	163	93	160
San Francisco	649	29	66	36	41	132	106	59	37	63
Other bay counties	407	11	42	26	42	73	72	34	18	37
Coast counties	187	5	18	9	20	35	25	20	15	11
Interior counties	487	20	58	20	36	75	86	50	23	49
Southern California	1,156	29	208	68	107	218	163	86	60	84
Los Angeles	815	19	153	49	73	156	119	53	48	51
Other counties	341	10	55	19	34	62	44	33	12	33
Northern and Central California	2,060	72	231	115	176	369	325	185	109	191
Metropolitan area	1,056	40	108	62	83	205	178	93	55	100
Rural counties	1,004	32	123	53	93	164	147	92	54	91

Sex and Age Periods.—The proportion of the sexes among the 3,216 decedents in January was: Male, 2,025, or 63.0 per cent; and female, 1,191, or 37.0 per cent.

The following table shows the age distribution, by numbers and per cents, of deaths classified by sex:

Deaths Classified by Sex and Age Periods, with Per Cents by Age Periods, for California: January.

Age period.	Deaths.			Per cent.		
	Total.	Male.	Female.	Total.	Male.	Female.
All ages -----	3,216	2,025	1,191	100.0	100.0	100.0
Under 1 year-----	281	173	108	8.7	8.5	9.1
1 to 4 years-----	113	58	55	3.5	2.9	4.6
5 to 14 years-----	74	39	35	2.3	1.9	2.9
15 to 24 years-----	225	129	94	7.0	6.4	7.9
25 to 34 years-----	326	215	111	10.1	10.6	9.3
35 to 44 years-----	323	203	120	10.1	10.0	10.1
45 to 54 years-----	396	285	111	12.3	14.1	9.3
55 to 64 years-----	429	284	145	13.3	14.0	12.2
65 years and over-----	1,051	639	412	32.7	31.6	34.6

This table shows that relatively more females than males died at under 1 year, 1 to 4 years, 5 to 14 years, 15 to 24 years, and at 65 years and over. In the age periods from 25 to 64 years, however, there were relatively more deaths among men than among women, generally speaking. That is, death comes to men mainly during years of active mature life, but takes women especially in infancy, childhood, and youth, as well as at extreme old age.

Occupations.—The table below gives, for deaths 15 years and over, the number of men and women for whom some occupation was reported in contrast with those for whom no gainful occupation was shown:

Deaths 15 Years and Over Classified by Sex and Occupation, with Per Cents by Sex, for California: January.

	Deaths.			Per cent.	
	Total.	Male.	Female.	Male.	Female.
15 years and over-----	2,748	1,755	993	63.9	36.1
Occupation reported -----	1,602	1,506	96	94.0	6.0
No gainful occupation -----	1,146	249	897	21.7	78.3

Of the 1,602 decedents for whom occupations were reported the males numbered 1,506, or 94.0 per cent, and the females only 96, or 6.0 per cent.

The following table shows the distribution of male decedents 15 years and over, engaged in the main kinds of occupation :

Deaths of Males 15 Years and Over Engaged in Gainful Occupations, Classified by Kind of Occupation, with Per Cents, for California: January.

Kind of occupation.	Males 15 years and over.	
	Deaths.	Per cent.
All occupations -----	1,506	100.0
Professional -----	92	6.1
Olerical and official -----	122	8.1
Mercantile and trading -----	125	8.3
Public entertainment -----	40	2.7
Personal service, police and military -----	49	3.3
Laboring and servant -----	302	20.0
Manufacturing and manufacturing industry -----	321	21.3
Agricultural, transportation, and other outdoor -----	442	29.3
Other occupations -----	13	0.9

Of the 1,506 male decedents for whom occupations were reported 442, or 29.3 per cent, were engaged in agriculture, transportation and other outdoor pursuits; 321, or 21.3 per cent, in manufacturing and mechanical industry; 302, or 20.0 per cent, in laboring and servant work; and altogether 441, or 29.4 per cent, in professional, clerical and official, mercantile and trading, and all other occupations.

Morbidity Report for January, 1912.

Diseases.	Cases.	Places.
Smallpox -----	139	15
Diphtheria -----	257	37
Scarlet fever -----	230	46
Measles -----	1,400	41
Whooping-cough -----	85	7
Influenza -----	56	4
Mumps -----	155	17
Syphilis -----	4	2
Gonorrhoea -----	21	6
Tuberculosis -----	362	25
Ohickenpox -----	199	25
Typhoid fever -----	55	21
German measles -----	12	1
Pneumonia -----	2	2
Meningitis -----	1	1
Hookworm -----	46	3
Tonsillitis -----	56	9
Erysipelas -----	6	2
Croup -----	3	1
Malaria -----	5	1
Dysentery -----	2	2
Tetanus -----	1	1
Leprosy -----	1	1
Ringworm -----	5	1
Glanders -----		

REPORT OF THE STATE HYGIENIC LABORATORY FOR JANUARY.

WILBUR A. SAWYER, M.D., Director.

Outbreak of Rabies in San Francisco.

During January the number of examinations of dogs' heads for rabies (hydrophobia) was greater than in any previous month. All but two of the examinations proved that the disease was present, and confirmed the diagnosis of the senders. This evidence illustrates the fallacy of the prevalent idea that rabies does not occur except in warm weather. Most of the specimens came from the central part of the San Joaquin Valley.

The most serious new development in the situation with regard to rabies has been evidence that the disease has gained a firm foothold in San Francisco. The entrance of the disease into the populous region around San Francisco Bay was considered as almost inevitable by those who have been following the spread of the disease northward through the San Joaquin Valley, and the failure of the county authorities to check the disease in its spread through the country districts. Whether the disease reached San Francisco as the result of its steady advance from the south, or whether it was brought by the transportation over the railroad of a dog infected at some distant point, can not now be determined. It remains to be seen whether San Francisco will handle the disease with vigor at its very beginning.

The heads of dogs from San Francisco were examined in the State Hygienic Laboratory and found positive as follows: On October 13, 1911, a dog showing symptoms of rabies was examined and evidence of the disease was found. This dog had bitten no one. No further specimens were submitted for examination until the present sudden increase in the disease. On January 30, 1912, a setter showing characteristic symptoms was found, on laboratory examination, to have rabies. This dog had bitten its owner. On February 2, 1912, a young dog which had bitten a man in San Francisco, and which showed suspicious symptoms, was killed. Examination of the brain proved the presence of rabies. On February 5, 1912, negri bodies were demonstrated in the brain of a dog which had developed characteristic symptoms at the Presidio. This dog had bitten no one. Information has been received from the Presidio that rabies has appeared among the dogs in the reservation. The diagnosis has been based upon observation of symptoms by a veterinarian, and, in a few instances, upon microscopic examination of the brain tissue.

Summary of Examinations Made in the California State Hygienic Laboratory During the Month of January, 1912.

Condition suspected.	Positive.	Negative.	Inconclusive.	Total.
Main Laboratory at Berkeley:				
Diphtheria -----	7	41	3	51
Gonococcus infection -----	1	2		3
Malaria -----		2		2
Plague -----		1		1
Rabies -----	14	1	1	16
Tuberculosis -----	12	26		38
Typhoid -----	7	21	1	29
Water pollution -----		1		1
Miscellaneous -----		2		2
				143
San Joaquin Valley Branch:				
Diphtheria -----	8	31		39
Tuberculosis -----		4		4
Typhoid -----		1		1
				44
Southern Branch:				
Diphtheria -----	19	47	1	67
Typhoid -----	2	3		5
				72
Total number of examinations -----				259

Pasteur Treatment for the Prevention of Rabies by the State Hygienic Laboratory During the Month of January, 1912.

Southern Branch:	
Courses of treatment of persons bitten by rabid animals:	
Treatment commenced -----	2
Treatment completed -----	1

Participation in Instruction in Public Health During January, 1912.

Main Laboratory at Berkeley:	
Bacteriological instruction outfits sent out -----	2
Bacteriological instruction outfits in use -----	21

Epidemiological Investigations During January, 1912.

Main Laboratory at Berkeley:	
Field investigations by the Director -----	3
Investigation of a case of suspected plague in Contra Costa County.	
Investigation of typhoid cases developing on the steamer "Acme."	
Investigation of the sources of the water supply of a Berkeley boarding-house.	

REPORT OF BUREAU OF FOODS AND DRUGS FOR JANUARY.

PROFESSOR M. E. JAFFA, Director.

Owing to a postponement of the regular meeting of the Board the January pure food and drug hearings were not completed until February 24th. The cases listed below were ordered referred to the district attorneys on that date.

The usual "Notices of Judgments" in Federal cases, and new "Food Inspection Decisions" have been omitted in accordance with instructions from the Secretary, but a bulletin-separate containing this information is being prepared and will be published as Part II of an early issue of the Bulletin.

FOOD AND DRUG CASES ORDERED REFERRED TO DISTRICT ATTORNEYS.

February 24, 1912.

Name of article.	Offense.	Manufacturer or jobber.	Accused dealer.	Locality.
Orange syrup -----	Mislabeled. Contains coal-tar color not declared on the label.	-----	T. Tanaka -----	Los Angeles.
Strawberry syrup ---	Mislabeled. Contains coal-tar color not declared on the label.	-----	S. Masamoto -----	Los Angeles.
Orange syrup -----	Mislabeled. Contains coal-tar color not declared on the label.	-----	Mrs. M. Nito-----	Los Angeles.
Banana syrup -----	Mislabeled. Contains coal-tar color not declared on the label.	-----	G. Kubota -----	Los Angeles.
Orange syrup -----	Mislabeled. Contains coal-tar color not declared on the label.	-----	I. Futamata -----	Los Angeles.
Raspberry syrup ---	Mislabeled. Contains coal-tar color not declared on the label.	-----	Y. Makikawa -----	Los Angeles.
Lemon syrup -----	Mislabeled. Contains coal-tar color not declared on the label.	-----	Y. Tarumoto -----	Los Angeles.
Wild cherry syrup---	Mislabeled. Contains artificial color not declared on the label.	-----	K. Nishio -----	Los Angeles.
Wild cherry syrup---	Mislabeled. Contains coal-tar color not declared on the label.	-----	Wm. Chocalakes -----	Los Angeles.
Cherry syrup -----	Mislabeled. Contains coal-tar color not declared on the label.	-----	W. M. Petitfils -----	Los Angeles.
Burned almonds ----	Adulterated. Contains shellac or other gum	-----	L. J. Christopher-----	Los Angeles.
Burnt almonds -----	Adulterated. Contains shellac or other gum not allowed in confectionery or coated nuts.	-----	John Cocoris -----	Los Angeles.
Quinine pills -----	Mislabeled. Contains acetanilid not declared	-----	Y. Tarumoto -----	Los Angeles.
Milk-----	Adulterated. Below standard in fat and solids not fat. Mislabeled, false and misleading statements.	-----	New York Restaurant.	Oakland.

REPORT OF BUREAU OF PUBLICATIONS AND HEALTH INFORMATION.

G. P. JONES, Acting Director.

The requests for literature upon sewage disposal for farmhouses and country residences have been specially frequent during January. It is evident, also, from the number of letters of inquiry received that active campaigns for pure milk have been started in many sections of the southern part of the State.

Special statistical information has been requested, bearing upon the need for legislation controlling the marriage of persons having tuberculosis, syphilis and several other diseases; also, information upon the investigations now being made by the Tuberculosis Commission.

The requests of a number of organizations and institutions for lectures have been met by addresses by the Secretary, Directors of the Bureaus and other members of the State Board's staff.

In accordance with instructions of the Secretary, tables are being prepared showing in a condensed form the work of the bureau. In future issues this summary will be printed, together with a brief résumé of the principal health lectures and conventions held throughout the State during each month.

Many requests for information upon special subjects are received, and for the convenience of any citizens who may desire literature bearing upon various diseases, the following list of publications available for free distribution is given:

Tuberculosis.

The Tuberculosis Problem. What Children Should Know About it. Leaflet No. 6.

The Tuberculosis Problem. What Teachers Should Know About it. Leaflet No. 2.

Smallpox and Vaccination.

Vaccination. California State Board of Health Bulletin, Vol. 6, No. 2.

Bubonic Plague.

Ground Squirrel Eradication. California State Board of Health Bulletin, Vol. 6, No. 8.

Poliomyelitis, Hookworm and Skin Diseases.

Medical Number. California State Board of Health Bulletin, Vol. 6, No. 4.

In addition to these the Bureau is prepared at all times to supply copies of the Pure Food and Drug Regulations, General Health Laws, and those Biennial Reports which are still in print.

LIST OF CITY HEALTH OFFICERS.

County.	Health Officer	Address.
Alameda	Dr. C. L. McKown	Niles
Alpine*	County Recorder Frank Smith	Markleeville
Amador	Dr. E. E. Endicott	Jackson
Butte	Dr. L. Q. Thompson	Gridley
Calaveras	Dr. E. W. Weirich	Angels Camp
Colusa	Dr. C. A. Ponge	Colusa
Contra Costa	Dr. F. S. Gregory	Pittsburg
Del Norte	Dr. E. M. Fine	Crescent City
El Dorado	Dr. L. M. Leisenring	Placerville
Fresno	Dr. W. T. Burks	Fresno
Glenn	Dr. J. A. Randolph	Willows
Humboldt	Dr. E. H. Bryant	Eureka
Imperial	Dr. Virgil McCoombs	El Centro
Inyo	Dr. I. J. Woodin	Independence
Kern	Dr. G. M. Bumgarner	Bakersfield
Kings	Dr. Ralph Motherol	Hanford
Lake	Dr. W. E. Upton	Kelseyville
Lassen	Dr. W. E. Dozier	Susanville
Los Angeles	Dr. E. O. Sawyer	Los Angeles
Madera	Dr. Mary R. Butlin	Madera
Marin	Dr. J. H. Kuser	Novato
Mariposa	Dr. F. L. Wright	Mariposa
Mendocino	Dr. J. Litchfield	Ukiah
Merced	Dr. C. H. Castle	Merced
Modoc	Dr. John Stille	Alturas
Monoc*	County Recorder Geo. Delury	Bridgeport
Monterey	Dr. Garth Parker	Salinas
Napa	Dr. E. Z. Hennessey	Napa
Nevada	Dr. Carl P. Jones	Grass Valley
Orange	Dr. John Wehrly	Santa Ana
Placer	Dr. O. L. Barton	Loomis
Plumas	Dr. F. D. Walsh	Quincy
Riverside	Dr. George E. Tucker	Riverside
Sacramento	Dr. Hugh Beattie	Elk Grove
San Benito	Dr. J. M. O'Donnell	Hollister
San Bernardino	Dr. Philip M. Savage	San Bernardino
San Diego	Dr. Nathan Hunt	San Diego
San Francisco	Dr. R. G. Brodrick	San Francisco
San Joaquin	Dr. Wm. Friedberger	Stockton
San Luis Obispo	Dr. H. M. Cox	San Luis Obispo
San Mateo	Dr. W. G. Beattie	Colma
Santa Barbara	Dr. J. C. Bainbridge	Santa Barbara
Santa Clara	Dr. William Simpson	San Jose
Santa Cruz		Santa Cruz
Shasta	Dr. F. Stabel	Redding
Sierra	Dr. R. B. Davy	Downsville
Slackyou	Dr. F. J. McNulty	Treka
Solano	Dr. S. G. Bransford	Suisun
Sonoma	Dr. P. A. Meneray	Santa Rosa
Stanislaus	Dr. F. R. De Lappe	Modesto
Sutter	Dr. J. McFadyen	Yuba City
Tehama	Dr. J. S. Cameron	Red Bluff
Trinity	Dr. D. B. Fields	Weaverville
Tulare	Dr. M. E. Pettit	Visalia
Tuolumne	Dr. Wm. Lyman Hood	Sonora
Ventura	Dr. A. A. Maulhardt	Oxnard
Yolo	Dr. W. J. Blevins	Woodland
Yuba	Dr. J. H. Barr	Marysville

LIST OF CITY HEALTH OFFICERS.

City.	Health Officer.	City.	Health Officer.
Alameda	Dr. A. Hieronymus	Hollister	Dr. R. G. Curtis
Albany	Dr. Robt. Hector	Hollywood	E. O. Palmer
Alhambra	Dr. F. E. Corey	Huntington Beach	C. F. Sorenson
Alturas	Dr. John Stille	Huntington Park	Dr. W. Thompson
Alviso		Imperial	Dr. C. E. Standlee
Anaheim	Dr. J. L. Beebe	Inglewood	Dr. H. A. Putnam
Antioch	Dr. W. S. George	Jackson	F. V. Sanguinetti
Arcadia		Kennett	Dr. J. P. Sandholdt
Arcata	Dr. G. W. McKinnon	Kernville	
Arroyo Grande		King City	
Auburn	Jas. H. Breslin	Kingsburg	
Azusa	Dr. L. W. Atkinson	Lakeport	Jabez Banks
Bakersfield	S. D. Mullins	Larkspur	
Belvedere	Dr. Florence Scott	Lincoln	F. R. Elder
Benicia	Dr. W. L. McFarland	Lindsay	Dr. W. W. Tourtillot
Berkeley	Dr. J. J. Benton	Livermore	Dr. H. G. McGill
Biggs	Dr. B. Caldwell	Lodi	Dr. F. W. Colman
Bishop	Dr. J. W. Shute	Long Beach	Dr. W. H. Newman
Blue Lake	Dr. G. N. Wood	Lompoc	
Brawley	Dr. L. L. Lindsey	Lordsburg	Dr. J. E. Hubble
Burbank		Los Angeles	Dr. L. M. Powers
Burlingame		Los Banos	Dr. J. L. McClelland
Calistoga		Los Gatos	Dr. C. K. Small
Calexico	Dr. Wm. F. Smith	Loyalton	Dr. G. L. Coates
Chico	G. H. Taylor	Madera	Dr. Mary R. Butin
Chino	Dr. John W. Callnon	Maricopa	Dr. H. N. Taylor
Claremont		Martinez	Dr. E. E. Brown
Cloverdale	F. P. Conner	Marysville	Wm. Meek
Coalinga	Dr. H. S. Warren	Mayfield	Dr. F. M. Seibert
Colfax	Silas Ulery	McCloud	Dr. R. T. Legge
Colton	Dr. J. A. Champlon	McKittrick	G. M. Chitwood
Colusa	Dr. C. A. Poage	Merced	Dr. C. H. Castle
Compton	J. W. Stone	Mill Valley	Capt. M. Staples
Concord	Dr. F. F. Neff	Modesto	Dr. J. J. Knowlton
Coram	Geo. H. Thomas	Montague	
Corning	Dr. W. F. Maggard	Mojave	A. Smith
Corona	Dr. W. H. Chapman	Monrovia	Dr. R. D. Adams
Coronado	Dr. Raffaele Lorini	Monterey	Edward Allen
Cottonwood	Dr. A. B. Gilliland	Morgan Hill	Dr. D. W. Watt
Covina		Mountain View	Dr. A. H. McFarlane
Crescent City		Napa	J. D. Treadway
Daly City		National City	Dr. T. F. Johnson
Davis	Dr. W. E. Bates	Nevada City	Hugh Murchie
Delano	Dr. H. Hildreth	Newman	Dr. H. V. Armistead
Dinuba	Dr. Wm. Whittington	Newport Beach	
Dorris	Dr. A. A. Atkinson	Oakdale	Elmer E. Endicott
Dixon	W. C. Rhem	Oakland	Dr. E. N. Ewer
Dunsmuir	Dr. E. J. Cornish	Ocean Side	Dr. R. S. Reid
Eagle Rock	Dr. C. H. Phinney	Ocean Park	Dr. W. M. Kendall
Elsinore	Dr. Hugh Walker	Ontario	Dr. C. S. Orr
Emeryville	Dr. A. T. Drennan	Orange	Dr. F. L. Champline
Escondido	Dr. David Crise	Orland	Dr. S. Goldman
Etna Mills	Dr. W. H. Haines	Oroville	Dr. W. F. Gates
Eureka	Dr. L. A. Wing	Oxnard	Dr. Ralph W. Avery
Exeter	Dr. A. D. McLean	Pacific Grove	E. B. Richi
Fairfield	Dr. S. G. Bransford	Palo Alto	Hubert O. Jenkins
Ferndale	Dr. C. A. Phelan	Pasadena	Dr. Stanley P. Black
Fort Bragg	Dr. L. C. Gregory	Paso Robles	B. B. Pierce
Fort Jones	Thos. Bransom	Perris	A. F. Hardy
Fortuna	Dr. Geo. S. Loveren	Petaluma	Dr. J. M. Proctor
Fowler	Dr. W. T. Crawford	Pinole	J. Chattleton
Fresno	Dr. Geo. H. Aiken	Pittsburg	Dr. F. S. Gregory
Fullerton	Dr. F. J. Gobar	Placerville	P. J. Hall
Gilroy	Dr. John A. Clark	Pleasanton	Dr. S. J. Wells
Glendale	Dr. R. E. Chase	Pomona	Dr. T. J. Wilson
Grass Valley	Paul E. Sears	Porterville	Dr. O. C. Higgins
Gridley	Dr. L. L. Thompson	Piedmont	Geo. T. Burtchael
Hanford	Dr. R. W. Musgrave	Point Arena	
Hayward	Dr. G. E. Reynolds	Potter Valley	
Healdsburg	Dr. J. W. Seawell	Randsburg	E. B. McGinnes
Hemet	Dr. A. B. Eadie	Red Bluff	Dr. F. J. Bailey
Hermosa Beach	E. McCaskey	Redding	L. D. Poole
Hercules	Dr. M. L. Fernandez	Redlands	Dr. Chas. E. Ide
Hillsborough		Redondo Beach	Dr. D. R. Hancock

CITY HEALTH OFFICERS—Continued.

City.	Health Officer.	City.	Health Officer
Redwood City-----	Dr. J. L. Ross	Sierra Madre-----	Dr. R. H. Mackerras
Richmond-----	Dr. Chas. R. Blake	Sebastopol-----	Dr. J. J. Keating
Rio Vista-----	Dr. A. J. McKinnon	Sisson-----	-----
Riverside-----	Dr. Thos. R. Griffith	South Pasadena-----	Dr. C. A. Whiting
Rocklin-----	Dr. S. P. Rugg	South San Francisco-----	Dr. H. G. Plymire
Roseville-----	Dr. R. H. Ashby	Stockton-----	Dr. R. T. McGurk
Ross-----	-----	Susanville-----	Dr. E. S. Drucks
Sacramento-----	Dr. Wm. K. Lindsay	Suisun-----	-----
Saint Helena-----	G. B. Anderson	Stanton-----	-----
Salinas-----	S. A. McCollum	Sonoma-----	-----
San Anselmo-----	Dr. Chipman	Taft-----	E. G. Wood
San Bernardino-----	Dr. C. V. McConnico	Tehachapi-----	R. M. Spencer
San Diego-----	Dr. F. H. Mead	Tracy-----	Dr. J. G. Murrell
San Francisco-----	Dr. R. G. Brodrick	Tehama-----	-----
Sanger-----	Dr. T. F. Madden	Tropico-----	-----
San Jose-----	Dr. M. F. Hopkins	Tulare-----	Dr. J. B. Rossor
San Jacinto-----	Thos. Lloyd	Turlock-----	Dr. E. L. Clough
San Juan-----	Henry Drake	Ukiah-----	Dr. J. Liftchill
San Luis Obispo-----	Dr. P. L. Rookledge	Upland-----	W. C. Redman
San Rafael-----	Dr. W. F. Jones	Vacaville-----	Dr. A. P. Finan
San Mateo-----	Dr. S. G. Goodspeed	Vallejo-----	Dr. E. A. Peterson
San Leandro-----	P. C. Du Bois	Ventura-----	J. H. Hardey
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CALIFORNIA STATE BOARD OF HEALTH

MONTHLY BULLETIN

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*As announced in the January (1912) Bulletin, this number is designated "March-April" in order to make the month of issue coincide with the current calendar month. Necessarily the reports must be for the preceding months.

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THE CALIFORNIA STATE BOARD OF HEALTH

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REGULAR MEETINGS

The meetings of the California State Board of Health are held regularly the first Saturday of each month, but the quarterly meetings required by law to be held at the Capitol of the State are ordinarily designated as January, April, July, and October.

By courtesy of the University of California the Food and Drug Laboratory and the Hygienic Laboratory are located in University buildings at Berkeley, California.

Address all general communications to the

SECRETARY, Sacramento, California.

MARCH-APRIL BULLETIN.

COMMENTS.

Clean-Up Days. Now is the time for "clean-up days" to begin once more. In nearly all the famous campaigns against disease, clean-up orders have played their part. In recent years the cleaning up of New Orleans and the Panama canal to stop yellow fever; the cleaning up of San Francisco to stop bubonic plague; the cleaning up of the Philippines to stop cholera; the cleaning up of Havana to stop many diseases, are all illustrations of this fact. Scientists know that disease is materially reduced by such campaigns, not because the filth itself produces disease, but because it favors the life of insects and rodents which do harbor disease and serve as its transfer agents. The fly, the roaches, the bedbug, the flea, the mosquito, the rat, these and others of our common insect and animal associates, that divide their time between living in our alleys and nibbling our foods and ourselves, have been discovered by disease parasites to be a means of attacking us. So, like the Greeks of old who concealed themselves in the wooden horse in order to gain entrance to Troy, these parasites conceal themselves in the bodies of the insects and rodents which we permit to enter our houses. A single clean-up day, by destroying the breeding and hiding places of these animal and insect harbingers of disease, interferes seriously with this beautiful scheme. When clean-up days become the frequent and regular thing, and are followed by extensions of the crusade to the dairies and other sources of the food supply of a whole city, our germ-enemies are practically forced to abandon this method of attack.

This explains how it is that clean-up days are advocated by the medical profession and health officers, even though they tell the people in the same breath that filth and rubbish are not in themselves the cause of disease. It is unfortunate that many good people, who make some claim to the right to speak authoritatively have learned only half the lesson of science in this matter. These persons have observed that a clean-up policy carried out for any length of time by a city is followed by a lowered death rate from communicable disease. It seems to them, therefore, that it only remains to write—Q. E. D.: "Filth causes disease and the germ theory is a myth." This error in deduction would do little harm were it not for the fact that it leads to opposition to many other methods of fighting disease "germs," which are even more important than the clean-up method.

The Governor has set Thursday, April 18th, as a general clean-up day to be observed throughout the State, and the newspapers of the State are very generally advocating the observance of the day not only as a measure of protection against fire but as a sanitary measure calculated to make for better health conditions. Clean-up days repeated with sufficient frequency constitute one great line of defense in our battles against disease. It is to be hoped that the efforts of the Gov-

ernor, the various organizations interested, and the newspapers will result in a very active house (and yard) cleaning on April 18th.*

It will be remembered that San Francisco began one of the greatest sanitary battles of modern history with her great fire of April 18th, 1906. It is fitting that the Governor should name this date as "Clean-up day," and that the entire State should follow the splendid example of the great city by the Golden Gate.

* * * * *

A Battleship a Year for a Pacific Squadron.

The December Bulletin contained a résumé of some facts and figures collected by the Tuberculosis Commission. These figures might be restated in this way: If California were to apply the same active business methods to the eradication of tuberculosis that is being applied to the financing and building of the Panama-Pacific Exposition, more than enough money and lives could be saved to build, maintain, and man one new class A battleship each year; and this without taking a single man now at work from his employment or adding permanently one dollar of increased taxation. At least all those who believe in a strong navy and a Pacific fleet should be willing to investigate this statement thoroughly, and if it is true, they should be willing to become active health conservationists.

It happens that the same month in which the California State Board published figures on the cost of tuberculosis to the State, the Missouri State Board likewise published figures. A comparison of these two estimates shows that the California estimate of a net loss of \$15,000,000 per year is very conservative.

* * * * *

Good Form Versus Good Sense.

There is sometimes a vast difference between good form and good sense. For example, a mother will provide her children with individual table utensils and chide them if they drink out of each other's glasses. It is true the Chinese and Igorrotes do it, but this only emphasizes the fact that a careful American mother should not permit her children to so transgress the social customs. That the care which she exercises, however, is due to considerations of good form rather than to good sense is proved when one follows this mother and her children down town and finds her calmly giving each of them a drink from the common cup chained to the public fountain.

This is but one of hundreds of illustrations that will occur to any one who spends a few moments thinking over how many things we all do because it is "good form" to do them and not because of any studied

*As this bulletin is leaving the press the following extracts from newspaper references to clean-up days which are in progress, give emphasis to the topic. General clean-up days announced and advocated for Fresno, Lemoore, Ocean Park, Oroville, Claremont has passed a special ordinance to prevent the dumping of rubbish in streets and alleys. Lodi has planned an active campaign. The city has been laid out in districts with executives in charge. The schools are to be dismissed to permit the children to work. The women's clubs are actively coöperating, and mass meetings have been held to perfect the plans. Los Angeles will keep 270 men and 135 teams at work for two months on special cleaning of the city. San Bernardino has ordered all alleys cleaned up. Stockton has made very extensive plans for cleaning up the city and at the same time beautifying it by planting flowers and shrubbery. Venice has passed a "3-day notice" ordinance requiring all citizens to clean up their property. Thus it will be seen that clean-up day is becoming a "habit" which is extending from the individual to the municipality.

application of good sense. Those who travel will have noticed the great change good form is working in the use of the Pullman lavatories, especially since the dental basins have been installed. It is no longer an accepted custom to brush one's teeth over the wash bowl, or even to leave the bowl for one's fellow passenger without first cleaning it with a fresh towel. It has fortunately become a matter of good form to have a sleeping porch, to take a morning bath, and to be an advocate of some outdoor sport; but it is evident from observing many people that in all these matters they are following the popular customs of the day without thinking out for themselves the special reasons why these customs are beneficial.

An interesting article might be written on Individual Utensils versus The Common Lot. The list of articles from the individual tooth brush to the individual bath tub is a long one, and steadily growing longer, yet the list of things we use in common is still very long. The common drinking cup is the least necessary, and should head the list. The roller towel is next. The soda fountain glass, as served in many stores, has had only a "theoretical" cleansing. The blankets and quilts, unprotected by long sheets are essentially community property of transient roomers.

When the Governor pocketed the legislature's bills banishing the common drinking cup and the roller towel, and requiring nine-foot bed sheets, the changing of the water in public swimming baths at intervals, etc., many of his admirers decided that his progressive policies did not include health conservation. On the other hand, some have argued that this type of legislation is open to question; that the banishment of the common cup from many states has only led to irritation of the people and to their going without water between meals, instead of providing themselves with individual cups. Perhaps the Governor reasoned that instead of legislating the common cup *out*, we should have legislated the drinking fountain *in*. He may have believed that all such matters are proper subjects for local ordinances rather than for state legislation. Be this as it may, it is certain that regardless of legislative enactment the demand for individual containers for food and individual facilities for personal cleanliness has steadily increased. When the people come to have the same hesitancy about using their neighbor's towel that they now have about using his handkerchief, the roller towel will go. All legislation dealing with the personal habits and customs of the people must ordinarily be expected to become dead letter laws, unless adequate appropriations are made for their enforcement or good form sets the seal of its approval upon them.

* * * * *

Habit and Judgment. Habit and judgment are often at variance. Habit leads nine out of ten of us to walk soberly along until we reach a flight of stairs, when we begin to run up the steps at full speed. We do this repeatedly, even though we know we shall be out of breath at the top and perhaps feel our arteries thump and our heads swim for some time as a result. Judgment tells us this is hard on the heart and foolish, but habit continues to direct our pace. Just so, judgment tells us that many early deaths from heart or kidney diseases could be postponed for twenty years or prevented altogether by *judicious activities, proper food and avoidance of nervous strain, but*

habit holds the helm, and the public is not yet ready to enact legislation to compel citizens to avoid the penalties of these diseases by proper attention to their food, recreation, and exercise.

Legislatures in general have shown a willingness to consider for legislation all matters concerning communicable diseases, and those conditions predisposing to ill health, which are beyond the control of the individual; but as a rule have been unwilling to compel a citizen by legislation to do things which concern only his own personal health. In these matters it seems necessary to wait for habit and judgment to be developed through the channels of popular education and good example. There are many arguments in favor of this policy.

OSLERIZING DISEASE PARASITES.

When Johns Hopkins University of Baltimore, Maryland, opened its doors in the year 1875-76, American students had an opportunity for the first time to study the biological and physical sciences by the laboratory methods. When some half dozen years later the Johns Hopkins Hospital opened its doors to students of medicine, the United States began its present methods of teaching modern scientific medicine. There are now several universities that are beginning pioneer efforts to place the teaching of Preventive Medicine on a similarly secure scientific basis.

At the time the drawing on the opposite page was made Dr. Osler was devoting considerable time to aiding the Tuberculosis Associations popularize the scientific facts about consumption. Since then Dr. Osler has unwittingly become the champion of a "chloroform theory" for improving social efficiency, and the germ theory of consumption has very generally become known among the people, but both these theories have many opponents. Curiously enough in many instances those persons who construe Dr. Osler's humorous reference to chloroforming people beyond the age of forty or fifty, as a serious and dangerous doctrine, are also to be found in the ranks of those who believe in doing nothing effectively against the large number of deadly communicable diseases which are daily accomplishing more than all the "official chloroformers" that might be appointed could do if they worked continuously, including nights and Sundays.

What Dr. Osler intended to emphasize in his now famous speech was that most men and women do their best work or begin their most productive work along all lines of original human endeavor and investigation before the age of forty; that this being the case, young men and women should be given every opportunity to develop their greatest usefulness during these early years; that where older individuals are merely marking time in positions of responsibility and power, they should make way for their lieutenants, who need but opportunity to crystallize latent ability into action; that when these time-marking individuals do not voluntarily recognize the importance of thus encouraging progress and social efficiency, influence should be brought to bear to eliminate them from the ranks of obstructionists. As a figure of speech he stated that chloroform would accomplish this object. Dr. Osler's theory, expressed in a different way, has become a vital issue in the present political situations throughout the country. It has been clearly *stated that "the principal difference between a Progressive and a Conservative is the difference between the ages of forty and sixty."*

The newspapers of the whole United States commented on this and produced evidence to show the great value to society of men and women



The above drawing was made when Dr. William Osler was Professor of Medicine in Johns Hopkins University. It was the purpose of the student-artist to show the panic, which occurred among the disease germs, when Dr. Osler and his associates began their wonderful educational work in scientific medicine. The little round pus organisms (*staphylococci*) are shown fleeing in a body, the strands of blood-poisoning organisms (*streptococci*) are likewise seen running strung out like children playing "crack the whip." In the foreground is seen a malarial parasite with its young escaping at full speed; at the left two lockjaw germs (*tetanus bacilli*), and behind them numerous diphtheria bacilli, have given up the siege of the patients in the hospital and are making every effort to escape. Of all these fleeing armies only the group of stalwart tubercle bacilli pictured in the center of the foreground have stopped to consider their position. One of these germs may be seen sitting down during their council of war.

beyond the age of fifty, and the people read and approved. At the same time many read with unawakened interest the statements of the tuberculosis associations about the great preventable loss of life prior to the age of forty. The only explanation of this inconsistent attitude lies in the fact that the public did not (and does not to-day) fully appreciate the possibilities and scientific basis for health conservation.

The existence of these germ armies—invisible to the naked eye—were practically unknown to scientists prior to the time of the American Civil War. Consequently all persons above the age of fifty were born and received their general education before much was known about them. It is not surprising, therefore, that many able and influential citizens (even including some physicians) should be confused concerning the significance of many modern measures for the suppression of communicable disease.

When the majority of citizens understand the general scientific principles of prevention of disease as they now understand the principles upon which crops are produced or electrical machinery and automobiles are operated, there will develop a fixed policy for health conservation which will result in an efficient administration of public health departments, which can not be retarded or inhibited by any efforts of advocates of half-truth theories. It is of greater importance to get the attention of the public centered on prolonging the lives of useful citizens than to develop means of eliminating those who have passed their day of usefulness.

COMMITTEE ON STANDARD METHODS OF PUBLIC HEALTH ADMINISTRATION.

By JOHN NIVISON FORCE, M.D.
Secretary of the Committee.

EDITOR'S NOTE.—If evidence of good sense is often lacking in the common practices of the laity in matters of health preservation it is also conspicuously absent in an analysis of many of the practices of health officials. There is the greatest diversity of procedure in the several towns, cities and counties of the State in methods of quarantine, isolation, release, investigation of outbreaks of communicable diseases, ordinances for the control of milk and meat supplies, etc.

Some months ago the State Board of Health appointed a committee of fifteen—experts in health administration, laboratory, scientific, legal, and engineering work—to make a thorough study of health administration procedures in California, and to recommend a standard series of rules and regulations for the guidance of local officials.

There is probably no single thing more needed in public health administration than a code of working rules and regulations adaptable to all the varying conditions under which communicable diseases appear in cities, towns and rural districts. The State Board of Health is deeply appreciative of the thorough and earnest work being done by this committee.

On November 27, 1911, the Secretary of the State Board of Health addressed a letter to fifteen persons identified with public health activities in the State of California, requesting them to coöperate with the State Board of Health as a committee on standard rules and regulations for procedure in the administrative control of communicable diseases and model health ordinances for municipalities and counties. All of these persons accepted the call of the State Board, and the committee was organized at the State Hygienic Laboratory in Berkeley, January 17, 1912, with the following personnel:

Dr. R. G. Brodrick, San Francisco,
Health Officer of San Francisco.

Dr. F. W. Browning, Hayward (chairman of the committee),
Health Officer of Eden Township, Hayward, Alameda County.

- Dr. J. N. Force, Berkeley (secretary of the committee),
Assistant Professor of Epidemiology, University of California.
- Mr. C. G. Hyde, Berkeley,
Professor of Sanitary Engineering, University of California.
- Dr. J. W. James, Sacramento,
Member Sacramento City Board of Health.
- Mr. H. A. Mason, San Francisco,
Secretary of the League of California Municipalities.
- Dr. T. C. McCleave, Berkeley,
President of the California Association of Medical Milk Commissions.
- Dr. Gayle G. Mosley, Redlands,
Superintendent of Redlands Settlement Sanitarium.
- Dr. R. A. Peers, Colfax,
Medical Director of the Colfax School for the Tuberculous.
- Dr. E. H. Pitts, Sacramento,
Secretary Sacramento Society for Medical Improvement.
- Dr. L. M. Powers, Los Angeles,
Health Officer of Los Angeles.
- Dr. Raymond Russ, San Francisco,
Formerly with United States Public Health Service, and Special Officer State Board of Health.
- Dr. Wm. Simpson, San Jose,
Health Officer of Santa Clara County.
- Dr. G. E. Tucker, Riverside,
Health Officer of Riverside County.
- Dr. Hans Zinnser, Stanford University,
Professor of Bacteriology, Stanford University.

The subjects to be considered by the committee are grouped under three heads, for the purpose of facilitating a report on the various phases of public health administration. The entire membership of the committee is divided into five sections of three members each for report on each group of subjects. When the work on the first group has been completed, the work of the other two groups will be carried on in the same way.

Broad Lines Covered in Organization.

The titles of the divisions and sections and the membership under this arrangement are as follows:

First Division. The Administrative Control of Communicable Diseases.

- Section 1. Precautions in Visiting Patient.
Tucker, Moseley, Powers.
- Section 2. Standard Methods of Diagnosis.
Zinnser, Simpson, Brodrick.
- Section 3. Circulars of Information to Family of Patient.
Mason, McCleave, Hyde.
- Section 4. Notification, Quarantine, and Release.
Russ, Browning, Force.
- Section 5. Disinfection, and Fumigation.
Peers, James, Pitts.

Second Division. Model Health Ordinances.

- Section 6. City Ordinances.
Force, Russ, Simpson.
- Section 7. County Ordinances.
Browning, Hyde, Mason.
- Section 8. Milk.
McCleave, Brodrick, Zinnser.
- Section 9. Meat and Vegetables.
Moseley, Tucker, Powers.
- Section 10. Food and Drugs.
Pitts, Peers, James.

Third Division. Miscellaneous and Doubtful Functions of Health Officers.

- Section 11. Duties of Health Officers.
Brodrick, Browning, Force.
- Section 12. Sanitation and Plumbing.
Hyde, Zinnser, McCleave.

Section 13. Laboratory in Public Health.
Powers, Tucker, Moseley.

Section 14. Garbage.
James, Pitts, Peers.

Section 15. Inter-Department Relations.
Simpson, Mason, Russ.

The first meeting of the committee subsequent to its organization was held at the time and place selected by the State Medical Society, Del Monte, April 16, 1912. At this meeting reports were presented from all the sections comprising the first division, and these reports were referred back to the sections, with instructions to embody the recommendations into a component part of a code of public health regulations, which could be promulgated by the State Board of Health after acceptance.

Other States Set Good Examples.

The need for a set of definite working rules for this State is apparent to every person who has ever considered the subject of Public Health Administration. We have many excellent examples furnished by other states. The State of Louisiana has just one law bearing on the public health, but this gives power to the State Board of Health to prepare and promulgate a code which shall be a guide to health officers. The code is very extensive, and covers in its numerous chapters practically all phases of administrative control. New York has a manual of instructions, of handy pocket size containing model ordinances, state laws, circulars of information, and instructions to health officers. Indiana has a code of regulations which are declared to have the force and effect of law, and are bound in one volume with the health laws. The question of procedure under our present health laws, has caused much difference of opinion between health officers and physicians in the past, and many a health officer has been compelled to go against his better judgment in the enforcement of some ancient rule planted on our statute books in the days when sewer gas was deadly, and germs had the same jumping power as our justly celebrated P. Irritans.

A modern scientific code of procedure, accompanied by some specific recommendations as to state legislation would tend to harmonize the elements of the triple relation, patient, physician, and public health officer, and produce a better understanding and renewed confidence. A code such as this for California would also show to the people that every health officer was essentially a state officer and was responsible to central authority for his conduct. This would be a benefit in two ways. First of all, the health officer accused of being arbitrary, could point to his definite instructions; and second, the people would learn that behind every act of the health officer stood the power of the State. With a centralized system of public health administration the day of the politically appointed health officer would indeed be short in the land. Of course these reforms will not be accomplished in a moment, but the spirit of interest shown by the committee, speaks eloquently of the demand for its work, and it is anticipated that the progress reports which will be issued from time to time in this publication, will be read and criticised, to the end that the committee may feel that an intelligent popular sentiment is coöperating in the endeavor to give to our State a code of public health regulations.

REPORT OF BUREAU OF ADMINISTRATION FOR FEBRUARY AND MARCH.

JOHN F. LEINEN, Director.

Executive Division.

The following tables may give an idea as to the volume of correspondence and detail handled by this Bureau. During February over 2,100 letters were sent out, and during March this number rose to 3,300. During February 1,900 letters were received and in the following month 2,400. The subjects treated in this correspondence are 173 in number, and cover all phases of health administration,—executive, legislative, and educational.

Report for the Month of February, 1912.

Items.	Total.	No. of subjects.	Adminis- trative.	Morbidity.	Inter. Bureau.	Miscel- laneous.
Letters received	1,914	173	601	434	520	359
Letters sent	2,154	173	711	512	552	379
Circular letters sent.....	125	1	125	-----	-----	-----
Report blanks sent.....	1,770	8	141	1,479	150	-----
Reports received	1,235	15	136	856	243	-----
Press clippings, bulletins, and newspapers received..	1,500	25	200	800	300	200
Accounts audited	141	-----	18	-----	123	-----
Estimates approved, items.	144	-----	18	-----	126	-----
Checks issued	61	-----	15	-----	46	-----
General orders issued.....	87	3	30	-----	57	-----
Special orders issued.....	9	1	-----	-----	9	-----
Miscellaneous letters advis- ing local health officers and communities	112	15	42	68	7	-----

Report for the Month of March, 1912.

Letters received	2,405	174	825	632	456	492
Letters sent	3,304	174	954	842	680	828
Circular letters sent.....	1,025	5	50	-----	975	-----
Report blanks sent.....	1,960	8	155	1,650	155	-----
Reports received	1,421	15	155	1,040	226	-----
Press clippings, bulletins and newspapers received..	1,720	30	320	900	318	182
Accounts audited	119	-----	14	-----	105	-----
Estimates approved, items.	128	-----	14	-----	114	-----
Checks issued	73	-----	12	-----	61	-----
Miscellaneous letters advis- ing local health officers and communities	216	17	96	101	19	-----

REPORT OF BUREAU OF VITAL STATISTICS FOR FEBRUARY.

GEORGE D. LESLIE, Statistician.

State Totals and Annual Rates.—The following table shows for California as a whole the birth, death, and marriage totals for the current and preceding months in comparison with those for the corresponding months of last year, as well as the annual rates per 1,000 population represented by the totals for the current and preceding months. The rates are based on an estimated midyear population of 2,579,874 for California in 1912, the estimate having been made by the Census Bureau method with slight modifications.

Birth, Death and Marriage Totals, with Annual Rates per 1,000 Population for Current and Preceding Months for California: February.

Month.	MONTHLY TOTAL.		Annual rate per 1,000 population: 1912.
	1911.	1912.	
February:			
Births -----	3,062	2,530	15.0
Deaths -----	3,080	2,788	15.0
Marriages -----	2,184	1,785	10.7
January:			
Births -----	3,059	2,601	14.0
Deaths -----	3,216	3,192	14.7
Marriages -----	2,430	1,981	11.1

The birth, death, and marriage totals for February were much greater in 1912 than in 1911, the gain in birth registration being particularly great for February as for January also.

County Totals.—The first table on the following page shows the monthly birth, death, and marriage totals for the principal counties of the State, the list being limited to counties having a population of at least 25,000 according to the Federal Census of 1910. Totals are also shown for San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), as well as for Los Angeles and Orange counties together.

City Totals.—The second table on the following page gives the birth and death totals for the principal freeholders' charter cities, the list including all chartered cities with a census population of at least 15,000 in 1910. Totals are given likewise for San Francisco in comparison with Oakland, Alameda, and Berkeley, the three cities adjoining one another on the east shore of San Francisco Bay, as well as for Los Angeles in comparison with neighboring chartered cities (Long Beach, Pasadena, Pomona, and Santa Monica).

Birth, Death and Marriage Totals, for Principal Counties: February.

County.	February, 1912.		
	Births.	Deaths.	Marriages.
California	3,062	3,080	2,184
Counties of more than 25,000 population (1910):			
Alameda	308	292	177
Butte	56	34	16
Contra Costa	41	36	10
Fresno	126	67	76
Humboldt	34	33	23
Kern	31	41	27
Los Angeles	822	755	517
Marin	22	11	93
Orange	71	30	80
Riverside	45	47	35
Sacramento	117	97	83
San Bernardino	51	92	49
San Diego	82	105	82
San Francisco	543	614	450
San Joaquin	45	100	36
San Mateo	31	21	32
Santa Barbara	26	26	19
Santa Clara	101	127	68
Santa Cruz	31	33	17
Solano	22	20	11
Sonoma	43	56	33
Tulare	39	28	26
Selected groups:			
San Francisco and other bay counties.....	945	974	762
Los Angeles and Orange counties.....	893	785	597

Birth and Death Totals, for Principal Cities: February.

City.	February, 1912.	
	Births.	Deaths.
Freeholders' charter cities.....	1,927	1,920
Cities of more than 15,000 population (1910):		
Alameda	31	26
Berkeley	41	38
Fresno	46	27
Long Beach	27	33
Los Angeles	584	488
Oakland	203	164
Pasadena	48	45
Riverside	26	30
Sacramento	91	84
San Diego	52	87
San Francisco	543	614
San Jose	39	43
Stockton	15	40
Selected groups:		
San Francisco	543	614
Oakland, Alameda and Berkeley.....	275	228
Total, Bay cities.....	818	842
Los Angeles	584	488
Neighboring cities	98	102
Total	682	590

Causes of Death.—The following table shows the classification of deaths in California for the current month, in comparison with the preceding month:

Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths for Current and Preceding Month, for California: February.

Cause of death.	Deaths: February.	Proportion per 1,000.	
		February.	January.
ALL CAUSES -----	3,080	1,000.0	1,000.0
Typhoid fever -----	18	5.8	8.4.
Malarial fever -----	1	0.3	2.2
Smallpox -----	1	0.3	0.3
Measles -----	16	5.2	4.0
Scarlet fever -----	4	1.3	2.5
Whooping-cough -----	9	2.9	1.9
Diphtheria and croup -----	15	4.9	4.0
Influenza -----	10	3.3	3.4
Other epidemic diseases -----	12	3.9	4.7
Tuberculosis of lungs -----	429	139.3	116.0
Tuberculosis of other organs -----	60	19.5	20.5
Cancer -----	169	54.9	56.9
Other general diseases -----	115	37.3	42.6
Meningitis -----	31	10.1	6.5
Other diseases of nervous system -----	228	74.0	81.5
Diseases of circulatory system -----	544	176.6	182.5
Pneumonia and broncho-pneumonia -----	328	106.5	123.7
Other diseases of respiratory system -----	87	28.2	28.0
Diarrhea and enteritis, under 2 years -----	55	17.9	16.2
Diarrhea and enteritis, 2 years and over -----	30	9.7	6.2
Other diseases of digestive system -----	167	54.2	61.9
Bright's disease and nephritis -----	182	59.1	52.6
Childbirth -----	34	11.0	8.4
Diseases of early infancy -----	112	36.4	31.1
Suicide -----	63	20.5	20.8
Other violence -----	222	72.1	64.7
All other causes -----	138	44.8	48.5

In February there were 544 deaths, or 17.7 per cent of all, from diseases of the circulatory system, and 489, or 15.9 per cent, from various forms of tuberculosis. Heart disease thus led tuberculosis considerably.

Other notable causes of death were: Diseases of the respiratory system, 415; violence, 285; diseases of nervous system, 259; diseases of digestive system, 252; Bright's disease and nephritis, 182; cancer, 169, and epidemic diseases, 86.

The deaths from epidemic diseases were as follows: Typhoid fever, 18; measles, 16; diphtheria and croup, 15; influenza, 10, and all other epidemic diseases, 27.

The deaths from the three leading epidemic diseases reported for the month were distributed by counties as follows:

TYPHOID FEVER.		MEASLES.		DIPHTHERIA AND CROUP.	
Contra Costa -----	1	Nevada -----	1	Alameda -----	4
Fresno -----	1	Sacramento -----	3	Fresno -----	1
Lake -----	2	San Francisco -----	11	Los Angeles -----	4
Los Angeles -----	3	Santa Clara -----	1	Mendocino -----	1
Riverside -----	1			San Bernardino ----	1
San Bernardino ----	1	Total -----	16	San Francisco -----	3
San Diego -----	1			Tulare -----	1
San Francisco -----	5				
San Joaquin -----	2			Total -----	15
Stanislaus -----	1				
Total -----	18				

Geographic Divisions.—The following table presents data for geographic divisions, including the metropolitan area, or San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), in comparison with the rural counties of Northern and Central California:

Deaths from Main Classes of Diseases, for Geographic Divisions: February.

Geographic division.	All causes.	Deaths: February.										All other causes.
		Epidemic diseases.	Tuberculosis (all forms).	Quarantine.	Diphtheria.	Dysentery.	Diseases of circulatory system.	Diseases of respiratory system.	Diseases of digestive system.	Diseases of genitourinary system.	Violence.	
THE STATE	3,080	86	489	169	259	544	415	252	182	285	399	
Northern California	333	9	46	12	45	86	86	23	19	36	48	
Coast counties	194	5	24	8	26	86	24	11	8	22	20	
Interior counties	139	4	22	4	9	23	12	12	11	14	28	
Central California	1,656	52	247	85	117	319	241	141	92	150	212	
San Francisco	614	23	91	37	35	128	81	61	38	58	67	
Other bay counties	360	11	54	17	34	69	50	24	16	34	53	
Coast counties	201	8	25	7	19	41	34	16	8	18	30	
Interior counties	481	17	77	24	29	81	76	40	30	45	62	
Southern California	1,091	25	196	72	97	196	138	88	71	99	139	
Los Angeles	755	18	128	51	62	111	98	62	52	73	100	
Other counties	336	7	68	21	35	55	40	26	19	26	39	
Northern and Central California	1,015	61	293	97	162	378	277	164	111	186	260	
Metropolitan area	974	32	145	54	99	197	131	85	54	87	120	
Rural counties	1,015	29	148	43	63	181	146	79	57	99	140	

Sex and Age Periods.—The proportion of the sexes among the 3,080 decedents in February was: Male, 1,916 or 62.2 per cent, and female, 1,164, or 37.8 per cent.

The following table shows the age distribution by numbers and per cents, of deaths classified by sex:

Deaths Classified by Sex and Age Periods, with Per Cents by Age Periods, for California: February.

Age period.	Deaths.			Per cent.		
	Total.	Male.	Female.	Total.	Male.	Female.
ALL AGES	3,080	1,916	1,164	100.0	100.0	100.0
Under 1 year	324	181	143	10.5	9.4	12.3
1 to 4 years	144	81	63	4.7	4.2	5.4
5 to 14 years	80	42	38	2.6	2.2	3.3
15 to 24 years	178	97	81	5.8	5.1	6.9
25 to 34 years	297	164	133	9.6	8.6	9.7
35 to 44 years	311	210	101	10.1	11.0	8.7
45 to 54 years	361	254	107	11.7	13.2	9.2
55 to 64 years	424	277	147	13.8	14.5	12.6
65 years and over	961	591	371	31.2	30.8	31.9

This table shows that relatively more females than males died at under 1 year, 1 to 4 years, 5 to 14 years, 15 to 24 years, and at 65 years

and over. The per cents were substantially the same for men and women dying between 25 and 34 years of age, but in the age periods from 35 to 64 there were relatively more deaths among men than among women. Thus, generally speaking, death comes to men mainly during years of active mature life, but takes women, especially in infancy, childhood, and youth, as well as at the other extreme of life, the period of old age.

Occupations.—The table below gives, for deaths 15 years and over, the number of men and women for whom some occupation was reported in contrast with those for whom no gainful occupation was shown:

Deaths, Fifteen Years and Over, Classified by Sex and Occupation, with Per Cents by Sex, for California: February.

	Deaths.			Per cent male.	Per cent female.
	Total.	Male.	Female.		
15 YEARS AND OVER-----	2,532	1,612	920	63.7	36.3
Occupation reported -----	1,460	1,378	82	94.4	5.6
No gainful occupation-----	1,072	234	838	21.8	78.2

Of the 1,460 decedents for whom occupations were reported the males numbered 1,378, or 94.4 per cent, and the females only 82, or 5.6 per cent.

The following table shows the distribution of male decedents 15 years and over, engaged in the main kinds of occupation:

Deaths of Males, Fifteen Years and Over, Engaged in Gainful Occupations, Classified by Kinds of Occupation, with Per Cents, for California: February.

Kind of occupation.	Males 15 years and over.	
	Deaths.	Per cent.
ALL OCCUPATIONS -----	1,378	100.0
Professional -----	76	5.5
Clerical and official-----	93	6.7
Mercantile and trading-----	113	8.2
Public entertainment -----	30	2.2
Personal service, police and military-----	41	3.0
Laboring and servant-----	270	19.6
Manufacturing and mechanical industry-----	285	20.7
Agriculture, transportation and other outdoor-----	458	33.2
All other occupations-----	12	0.9

Of the 1,378 male decedents for whom occupations were reported 458, or 33.2 per cent, were engaged in agriculture, transportation, and other outdoor pursuits; 285, or 20.7 per cent, in manufacturing and mechanical industry; 270, or 19.6 per cent, in laboring and servant

work; and altogether 365, or 26.5 per cent, in professional, clerical and official, mercantile and trading, and all other occupations.

Morbidity Report for February, 1912.

Disease.	Cases.	Places.
Smallpox	99	24
Diphtheria	137	32
Measles	1,451	37
Typhoid fever	44	12
Scarlet fever	164	35
Chickenpox	122	15
Mumps	89	11
Pneumonia	101	15
Trachoma	6	3
Gonorrhoea	15	8
Syphilis	8	4
Tuberculosis	260	21
Tonsillitis	5	2
Rabies	2	2
Whooping-cough	54	3
Cerebro-spinal meningitis	9	5
German measles	5	2
Lead poisoning	1	1
Erysipelas	28	4
Influenza	2	1
Ringworm	2	1
Malaria	3	1
Hookworm	3	1
Glanders	2	1
Total	2,612	241

Morbidity Report for March, 1912.

Disease.	Cases.	Places.
Smallpox	66	28
Diphtheria	164	42
Scarlet fever	77	32
Measles	1,356	53
Whooping-cough	78	12
Influenza	48	3
Mumps	204	18
Syphilis	1	1
Gonorrhoea	5	4
Tuberculosis	250	25
Chickenpox	143	23
Typhoid fever	65	23
Pneumonia	88	16
Hookworm	19	2
Tonsillitis	68	4
Erysipelas	27	7
Croup	14	3
Ringworm	2	2
Glanders	1	1
Malaria	13	3
Trachoma	4	3
Epidemic cerebro-spinal meningitis	1	1
Meningitis	4	4
Anthrax	1	1
Conjunctivitis	3	1
Poliomyelitis	2	2
Rabies	2	1
Tetanus	1	1
Amebiasis	1	1
Rotheln	3	2
Total	2,711	319

REPORT OF BUREAU OF HYGIENIC LABORATORY FOR FEBRUARY.

WILBUR A. SAWYER, M.D., Director.

A rapid increase of rabies among the dogs of San Francisco has occurred during the month of February. A considerable number of people have been bitten and the majority are now undergoing the Pasteur treatment. In order to protect those who are financially unable to secure treatment, the State Hygienic Laboratory is issuing the free government virus for administration by the City Bacteriologist of San Francisco and the physician in charge of the laboratory of the Letterman General Hospital at the Presidio. Through this means the State Board of Health hopes to prevent human deaths from occurring. Nine persons from San Francisco are now under treatment with government virus.

Summary of Examinations Made in the California State Hygienic Laboratory During the Month of February, 1912.

Condition suspected.	Positive.	Negative.	Inconclusive.	Total.
Main Laboratory at Berkeley:				
Diphtheria	26	59	1	86
Gonococcus infection	2	1		3
Hookworm		2		2
Malaria	2	5		7
Rabies	16	3	1	20
Tuberculosis	11	23	2	36
Typhoid	5	21	1	27
Water	7	3	2	12
Miscellaneous	1	1		2
				195
San Joaquin Valley Branch:				
Diphtheria	8	12	1	21
Gonococcus infection	2			2
Tuberculosis		4		4
Typhoid		1		1
				28
Southern Branch:				
Diphtheria	6	13		19
Typhoid	1			1
				20
Total number of examinations				243

Pasteur Treatment for the Prevention of Rabies by the State Hygienic Laboratory During the Month of February, 1912.

	Treatment commenced.	Treatment completed.
Main Laboratory at Berkeley	0	0
San Joaquin Valley Branch at Fresno	3	1
Southern Branch at Los Angeles	2	2
Laboratory of Sacramento Board of Health, by deputized bacteriologist	0	0
Laboratory of San Francisco Board of Health, by deputized bacteriologist	7	0
Laboratory of Los Angeles Board of Health, by deputized bacteriologist	0	0
Laboratory of Letterman General Hospital, Presidio, by deputized bacteriologist	2	1
	14	4

Participation in Instruction in Public Health during February, 1912.**Main Laboratory at Berkeley:**

Bacteriological instruction outfits sent out.....	5
Bacteriological instruction outfits in use.....	23
Exhibits loaned for hygienic museum in use.....	1
Number of models or other pieces of apparatus in above exhibits..	6
Talks by Director	2

Epidemiological Investigations during February, 1912.**Main Laboratory at Berkeley:**

Field investigations by the Director.....	2
Continuation of investigation of typhoid cases developing on the steamer "Acme."	
Investigation of epidemic of rabies in San Francisco.	

REPORT OF BUREAU OF HYGIENIC LABORATORY FOR MARCH.**A Typhoid Carrier on Shipboard.**

On March 19, 1912, an epidemiological investigation of typhoid fever among sailors was completed by the Hygienic Laboratory with the proof that 27 cases of typhoid and four deaths were traceable to a typhoid carrier on board a steam schooner which carried lumber from Eureka to San Francisco. Twenty-six of the cases came, during three and one half years, from the crew of this one ship, which carried only twenty-one men. The carrier was a member of the crew and had had typhoid four years before. He was still discharging virulent bacilli in his excreta. The Secretary and Executive Officer of the State Board of Health have placed the carrier under quarantine. He is voluntarily undergoing treatment for the condition which has resulted in sickness and death among his shipmates.

Cases of Hydrophobia.

During the month of March portions of brain tissue from two men dying in San Francisco with symptoms of hydrophobia (rabies) were examined at the laboratory. In both cases Negri bodies were found in the ganglion cells of the hippocampus. In one case animals which were inoculated with the tissue developed rabies, in the other case inoculation tests were impossible because the tissue had been sterilized by an embalming process. The tests showed conclusively that the fatal disease was rabies. Both these men were victims of the present epizootic of rabies in San Francisco. Both had been bitten by rabid dogs, one while trying to treat his dying dog, and the other while on the street.

A New Branch Laboratory.

On March 1, 1912, the Northern Branch of the State Hygienic Laboratory was established by the State Board of Health. It will be located in the Inverness Building in Sacramento and will be under the charge of Dr. F. F. Gundrum. Routine examinations for diphtheria, tuberculosis, and typhoid fever will be made at this branch for the northern counties, excepting the coast counties.

Stations for the Administration of the Pasteur Treatment for the Prevention of Rabies.

On March 1, 1912, the State Board of Health increased the number of stations at which the free government anti-rabic virus is administered

to those unable to pay for it. The list of stations now stands as follows: The Main Laboratory at Berkeley (Dr. W. A. Sawyer), the San Joaquin Valley Branch (Dr. W. W. Cross), the Southern California Branch (Dr. S. P. Black), the Northern California Branch (Dr. F. F. Gundrum), the City Health Department of San Francisco (Dr. W. H. Kellogg), the City Health Department of Los Angeles (Dr. R. B. Durfee), the City Health Department of Sacramento (Dr. E. S. Loizeaux).

Summary of Examinations Made in the California State Hygienic Laboratory During the Month of March, 1912.

Condition suspected.	Positive.	Negative.	Inconclusive.	Total.
Main Laboratory at Berkeley:				
Anthrax	1	1	-----	2
Diphtheria	41	59	-----	100
Gonococcus infection	1	-----	1	2
Malaria	1	5	-----	6
Rabies	10	7	-----	17
Tuberculosis	12	27	-----	39
Typhoid	4	36	6	46
Water	-----	1	-----	1
Miscellaneous	-----	6	1	7
				220
San Joaquin Valley Branch:				
Diphtheria	2	11	-----	13
Gonococcus infection	-----	1	-----	1
Malaria	-----	1	-----	1
Tuberculosis	-----	1	-----	1
Typhoid	1	2	-----	3
				19
Southern Branch:				
Diphtheria	7	19	1	27
Typhoid	-----	2	-----	2
				29
Northern Branch at Sacramento:				
Established during March. No examinations.				
Total number of examinations.....				268

Pasteur Treatment for the Prevention of Rabies by the State Hygienic Laboratory During the Month of March, 1912.

	Treatment commenced.	Treatment completed.
Main Laboratory at Berkeley.....	0	0
Northern Branch at Sacramento.....	0	0
San Joaquin Valley Branch at Fresno.....	2	2
Southern Branch at Los Angeles.....	0	1
Laboratory of Sacramento Board of Health, by deputized bacteriologist	0	0
Laboratory of San Francisco Board of Health, by deputized bacteriologist	9	10
Laboratory of Los Angeles Board of Health, by deputized bacteriologist	2	0
Laboratory of Letterman General Hospital, Presidio, by deputized bacteriologist	2	2
		15
		15

Participation in instruction in public health during February, 1912.**Main Laboratory at Berkeley:**

Bacteriological instruction outfits sent out.....	6
Bacteriological instruction outfits in use	28
Exhibits loaned from Hygienic Museum, sent out.....	1
Number of models in above exhibit.....	3
Exhibits loaned from Hygienic Museum in use.....	1
Number of models or other pieces of apparatus in above exhibits....	6
Talks by Director.....	1

Epidemiological investigations during March, 1912.**Main Laboratory at Berkeley:**

Field investigations by the Director.....	3
Completion of investigation of typhoid cases developing on the steamer "Acme," and detection of a typhoid "carrier" on board this ship.	
Investigation of a case of human rabies dying in San Francisco on March 9, 1912.	
Investigation of a case of human rabies dying in San Francisco on March 21, 1912.	

REPORT OF PURE FOOD AND DRUG LABORATORY FOR MARCH.

PROFESSOR M. E. JAFFA, Director.

The following food and drug cases were referred to the district attorneys of San Francisco, Los Angeles, and Oakland at the meeting of the Board held April 6, 1912:

No food or drug hearings were held during the month of March. The next hearings have been set for May 4, 1912.

During the summer the Bureau will continue its survey of counties with a view to making a progress report to the Legislature on the actual results of operating the pure food and drug acts in California for five years. There is no doubt that a great deal of good has resulted, but the small number of inspectors available has prevented any rapid changes.

The Board, at a recent meeting, adopted a policy of appointing "witness-deputies" in cities and towns having sanitary inspectors but having no special food ordinances or food inspectors. These witness-deputies are paid by the cities concerned, but work under the direction of the state food inspectors. It is believed that this arrangement will enable the Board to keep a much larger area under constant supervision. It will also insure uniformity of administration of food and drug control, which is a matter of vital importance to the wholesale merchants and all those engaged in interstate or intercounty business.

Food and Drug Cases Ordered Referred to District Attorneys April 6, 1912.

Name of article.	Offense.	Manufacturer or jobber.	Accused dealer.	Locality.
Banana syrup -----	Mislabeled. Contains coal-tar color not declared.	-----	John Cocores -----	-----Los Angeles
Banana syrup -----	Mislabeled. Contains coal-tar color not declared.	-----	J. W. Fisher -----	-----Los Angeles
Banana syrup -----	Mislabeled. Contains coal-tar color not declared.	-----	T. Curly -----	-----Los Angeles
Pineapple syrup -----	Mislabeled. Contains benzoates not declared.	-----	J. A. Harris -----	-----Los Angeles
Whisky -----	Adulterated. Below standard. Other materials have been substituted for alcohol.	Shanklin & Martell, Los Angeles.	Shanklin & Martell -----	-----Los Angeles
Frankfurter sausage -----	Mislabeled. Contains cereal not declared.	-----	A. J. Rosenberg -----	-----San Francisco
Frankfurter sausage -----	Mislabeled. Contains cereal not declared.	-----	A. J. Rosenberg -----	-----San Francisco
Milk -----	Adulterated. Below standard in fat and solids not fat.	-----	A. R. Kirk -----	-----Oakland
	Mislabeled. False and misleading statements.	-----		
Milk -----	Adulterated. Below standard in fat and solids not fat.	-----	John Bemis -----	-----Oakland
	Mislabeled. False and misleading statements.	-----		
Milk -----	Adulterated. Below standard in fat and solids not fat.	-----	Eureka Restaurant -----	-----Oakland
	Mislabeled. False and misleading statements.	-----		

REPORT OF BUREAU OF PUBLICATIONS AND HEALTH INFORMATION.

G. P. JONES, Acting Director.

Public interest in health matters continued during February and March as indicated by the many requests for printed information regarding disease prevention and general health conditions. Some of the latter requests are from intending settlers in other states who ask concerning health conditions in particular localities, which goes to show that a sanitary city is the best sort of advertisement. Many requests for information regarding methods for destroying the house fly and mosquito came with the approach of the spring months. The Bureau still has a limited number of the May, 1910, Bulletin which deals with the extermination of flies.

The following lectures were delivered by members of the staff:

February 13th, at El Cajon, "Pure Food and Drugs," by Professor M. E. Jaffa.

February 14th, at San Diego, "Pure Food and Drugs," by Professor M. E. Jaffa.

February 15th, at Lemon Grove, "Pure Food and Drugs," by Professor M. E. Jaffa.

March 8th, at Los Angeles, Pure Food and Drugs, by Professor M. E. Jaffa.

March 8th, at Los Angeles, "Pure Food and Drugs," by Professor Auxiliary, "Pure Food Laws—Ancient and Modern," by Professor M. E. Jaffa.

March 19th, at Mills College, "Public Health Service," by Dr. Wm. F. Snow.

March 21st, at the University of California, "Vocational Opportunities for Women," by Dr. Wm. F. Snow.

March 26th, at the League of the Republic meeting, University of California, "State Health Administration," by Dr. Wm. F. Snow.

March 28th, at the University of California, before the class in Sanitary Organization and Vital Statistics, "The Bureau of the Hygienic Laboratory and Its Work," by Dr. W. A. Sawyer.

During the next six months there will occur a number of notable meetings and popular exhibits along lines of health conservation. In May and June there will be held in Washington and Atlantic City a series of Conferences on Tuberculosis, Occupation Diseases, the Control of Venereal Diseases, etc., and the American Climatological Association will meet in Hartford. The Surgeon General's Conference with State Health Officials also convenes June 1st in Washington. This conference is of great value in promoting uniformity of health administration throughout the United States.

Of special importance to California will be the Summer School session of the University of California. The playground courses of instruction, the physical training and domestic science courses, and the public health courses are of the greatest value in promoting the health conservation movement. Lack of space prevents the publication in this issue of an excellent article on these courses written by Secretary Victor Henderson

of the University Board of Regents, but full descriptions can be obtained by writing to the Registrar of the University, Berkeley.

The annual national municipal convention, which will be held in Los Angeles in July, will be accompanied by a most instructive exhibit, which will devote space to housing conditions, garbage, sewage, parks, tuberculosis playgrounds, and many other phases of health problems.

In September the California League of Municipalities and the State Conference of Health Officers will meet in Berkeley. Here, also, a most instructive and practical health exhibit will be held.

In Washington, September 23d to 28th, there will be an exhibit on all the phases of preventive medicine. The Fifteenth International Congress on Hygiene and Demography will be one of the most significant and stimulating health conservation gatherings ever held. The scientific program will be participated in by the most famous scientists of the world. The exhibit will cover every phase of sanitation, prevention of accidents, personal care of health, etc. After this meeting it is expected that this exhibit will be kept intact and transferred from one great city to another throughout the United States. It is to be hoped this exhibit can be brought to San Francisco in 1915.

All persons interested in this congress should either attend or take out a membership in order to receive a printed copy of the proceedings and scientific papers. The membership fee is five dollars. The State Board of Health has literature describing this congress, which will be sent out on request.

The Governor of California has accepted the invitation of the United States Government to participate, and has appointed a committee to coöperate with the cities in planning any exhibits. This committee consists of the following:

1. Honorable Curtis H. Lindley-----San Francisco
Representing the Panama-Pacific Exposition.
2. Secretary Frank Wiggins-----Los Angeles
Representing Southern California Chambers of Commerce.
3. Doctor George C. Pardee-----Oakland
Representing the State Conservation Commission.
4. Doctor Thomas W. Huntington-----San Francisco
Representing the Medical Profession of California.
5. Doctor William F. Snow, California State Board of Health-----Sacramento
Representing the Governor of California.

The following open letter has been sent out by the California members of the directors of this congress.

The people of the Pacific slope will look forward with extraordinary interest to the forthcoming International Congress on Hygiene and Demography, and the exhibition to be held under the auspices of the Federal Government.

Our world relations will be greatly expanded with the opening of the Panama canal, and we must answer the *world's inquiry* as to our efficiency in these expanded relations. In such an inquiry, the status of our sanitary institutions and administration will be a dominant element, quite as the question of health defense dominates the canal enterprise. The International Congress will bring to this country hundreds of eminent foreigners whose opinion will prevail in forming the world's judgment of our national and local efficiency in matters of public health. From the viewpoint of authoritative opinion, those who will attend the congress at Washington, in 1912, are more important to us than the greater numbers who will attend the Panama-Pacific Exposition in 1915. We are offered in the congress of 1912 a splendid opportunity to become well known to hundreds of foreign experts who will carry back to their countries the impressions which they will have received two years ahead of the opening of the canal.

The opportunity is no less valuable from the viewpoint of public opinion in our sister states. Hitherto, we have had no real chance to show the quality of our sanitary undertakings and achievements. An exceptional chance is offered at Washington in 1912. Forty-odd states have already accepted the official invitation, so that it is impossible to doubt the sufficiency of our opportunity. An unequivocal response should come from California, Oregon, and Washington. It should be made clear that private citizens and public officials alike are sensible of present opportunities and of coming responsibilities. This letter is addressed to those who can greatly strengthen this movement by becoming active members of the congress, and by publicly encouraging the official participation by the State and municipal governments.

DR. NORMAN BRIDGE, Los Angeles.

DR. ELMER E. HEG, Seattle.

DR. HERBERT C. MOFFITT, San Francisco.

DR. WM. OPHULS, San Francisco.

DR. ANDREW C. SMITH, Portland.

DR. WM. F. SNOW, Sacramento.

LIST OF COUNTY HEALTH OFFICERS.

County.	Health officer.	Address.
Alameda	Dr. C. L. McKown	Niles
Alpine*	County Recorder Frank Smith	Markleeville
Amador	Dr. E. E. Endicott	Jackson
Butte	Dr. L. Q. Thompson	Gridley
Calaveras	Dr. Irwin B. March	San Andreas
Colusa	Dr. C. A. Poage	Colusa
Contra Costa	Dr. F. S. Gregory	Pittsburg
Del Norte	Dr. E. M. Fine	Crescent City
El Dorado	Dr. L. M. Leisenring	Placerville
Fresno	Dr. W. T. Burks	Fresno
Glenn	Dr. J. A. Randolph	Willows
Humboldt	Dr. E. H. Bryant	Eureka
Imperial	Dr. Virgil McCoombs	El Centro
Inyo	Dr. I. J. Woodin	Independence
Kern	Dr. G. M. Bumgarner	Bakersfield
Kings	Dr. Ralph Motherol	Hanford
Lake	Dr. W. E. Upton	Kelseyville
Lassen	Dr. W. E. Dozier	Susanville
Los Angeles	Dr. E. O. Sawyer	Los Angeles
Madera	Dr. Mary R. Butin	Madera
Marin	Dr. J. H. Kuser	Novato
Mariposa	Dr. F. L. Wright	Mariposa
Mendocino	Dr. J. Liftchild	Ukiah
Merced	Dr. C. H. Castle	Merced
Modoc	Dr. John Stile	Alturas
Mono*	County Recorder Geo. Delury	Bridgeport
Monterey	Dr. Garth Parker	Salinas
Napa	Dr. E. Z. Hennessey	Napa
Nevada	Dr. Carl P. Jones	Grass Valley
Orange	Dr. John Wehrly	Santa Ana
Placer	Dr. O. L. Barton	Loomis
Plumas	Dr. F. D. Walsh	Quincy
Sacramento	Dr. George E. Tucker	Riverside
San Benito	Dr. Hugh Beattie	Elk Grove
San Bernardino	Dr. J. M. O'Donnell	Hollister
San Diego	Dr. Phillip M. Savage	San Bernardino
San Francisco	Dr. Nathan Hunt	San Diego
San Joaquin	Dr. R. G. Brodrick	San Francisco
San Luis Obispo	Dr. R. B. Knight	Stockton
San Mateo	Dr. H. M. Cox	San Luis Obispo
Santa Barbara	Dr. W. G. Beattie	Colma
Santa Clara	Dr. J. C. Bainbridge	Santa Barbara
Santa Cruz*	Dr. William Simpson	San Jose
Shasta		Santa Cruz
Sierra	Dr. F. Stabel	Redding
Siskiyou	Dr. R. B. Davy	Downieville
Solano	Dr. F. J. McNulty	Yreka
Sonoma	Dr. S. G. Bransford	Suisun
Stanislaus	Dr. P. A. Meneray	Santa Rosa
Sutter	Dr. F. R. De Lappe	Modesto
Tuolumne	Dr. J. McFadven	Yuba City
Ventura	Dr. J. S. Cameron	Red Bluff
Yolo	Dr. D. B. Fields	Weaverville
Yuba	Dr. W. A. Preston	Visalia
Tehama	Dr. Wm. Lyman Hood	Sonora
Trinity	Dr. A. A. Maulhardt	Oxnard
Tulare	Dr. W. J. Blevins	Woodland
Tulare	Dr. J. H. Barr	Marysville

*This county has not been able to arrange with any physician to act as health officer.

LIST OF CITY HEALTH OFFICERS.

City.	Health officer.	City.	Health officer.
Alameda.....	Dr. A. Hieronymus	Inglewood.....	Dr. H. A. Putnam
Albany.....	Dr. Robt. Hector	Jackson.....	F. V. Sanguinetti
Alhambra.....	Dr. F. E. Corey	Kennett.....	Dr. J. P. Sandholdt
Alturas.....	Dr. John Stile	Kernville.....	_____
Alviso.....	_____	King City.....	_____
Anaheim.....	Dr. J. L. Beebe	Kingsburg.....	_____
Antioch.....	Dr. W. S. George	Lakeport.....	Jabez Banks
Arcadia.....	_____	Larkspur.....	_____
Arcata.....	Dr. G. W. McKinnon	Lincoln.....	F. R. Elder
Arroyo Grande.....	_____	Lindsay.....	Dr. W. W. Tourtillot
Auburn.....	Jas. H. Breslin	Livermore.....	Dr. H. G. McGill
Azusa.....	Dr. L. W. Atkinson	Lodi.....	Dr. F. W. Colman
Bakersfield.....	S. D. Mullins	Long Beach.....	Dr. W. H. Newman
Belvedere.....	Dr. Florence Scott	Lompoc.....	_____
Benicia.....	Dr. W. L. McFarland	Lordsburg.....	Dr. J. E. Hubble
Berkeley.....	Dr. J. J. Benton	Los Angeles.....	Dr. L. M. Powers
Biggs.....	Dr. B. Caldwell	Los Banos.....	Dr. J. L. McClelland
Bishop.....	Dr. J. W. Shute	Los Gatos.....	Dr. C. K. Small
Blue Lake.....	Dr. G. N. Wood	Loyalton.....	Dr. G. L. Coates
Brawley.....	Dr. L. L. Lindsey	Madera.....	Dr. Mary R. Butin
Burbank.....	_____	Maricopa.....	Dr. H. N. Taylor
Burlingame.....	_____	Martinez.....	Dr. E. E. Brown
Calistoga.....	_____	Marysville.....	Wm. Meek
Calexico.....	Dr. Wm. F. Smith	Mayfield.....	Dr. F. M. Seibert
Chico.....	G. H. Taylor	McCloud.....	Dr. R. T. Legge
Chino.....	Dr. John W. Callnon	McKittrick.....	G. M. Chitwood
Claremont.....	_____	Merced.....	Dr. C. H. Castle
Cloverdale.....	F. P. Conner	Mill Valley.....	Capt. M. Staples
Coalinga.....	Dr. H. S. Warren	Modesto.....	Dr. J. J. Knowlton
Colfax.....	Silas Ulery	Montague.....	_____
Colton.....	Dr. L. A. J. La Motte	Mojave.....	A. Smith
Colusa.....	Dr. C. A. Poage	Monrovia.....	Dr. R. D. Adams
Compton.....	J. W. Stone	Monterey.....	Edward Allen
Concord.....	Dr. F. F. Neff	Morgan Hill.....	Dr. D. W. Watt
Coram.....	Geo. H. Thomas	Mountain View.....	Dr. A. H. McFarlane
Corning.....	Dr. W. F. Maggard	Napa.....	J. D. Treadway
Corona.....	Dr. W. H. Chapman	National City.....	Dr. T. F. Johnson
Coronado.....	Dr. Raffaele Lorini	Nevada City.....	Hugh Murchie
Cottonwood.....	Dr. A. B. Gilliland	Newman.....	Dr. H. V. Armistead
Covina.....	_____	Newport Beach.....	_____
Crescent City.....	_____	Oakdale.....	Elmer E. Endicott
Daly City.....	_____	Oakland.....	Dr. E. N. Ewer
Davis.....	Dr. W. E. Bates	Ocean Side.....	Dr. R. S. Reid
Delano.....	Dr. H. Hildreth	Ocean Park.....	Dr. W. M. Kendall
Dinuba.....	Dr. Wm. Whittington	Ontario.....	Dr. C. S. Orr
Dorris.....	Dr. A. A. Atkinson	Orange.....	Dr. F. L. Champline
Dixon.....	W. C. Rhem	Orland.....	Dr. S. Goldman
Dunsmuir.....	Dr. W. B. Mason	Oroville.....	Dr. W. F. Gates
Eagle Rock.....	Dr. C. H. Phinney	Oxnard.....	Dr. Ralph W. Avery
Elsinore.....	Dr. Hugh Walker	Pacific Grove.....	Dr. W. V. Grimes
Emeryville.....	Dr. A. T. Drennan	Palo Alto.....	Hubert O. Jenkins
Escondido.....	Dr. David Crise	Pasadena.....	Dr. Stanley P. Black
Etna Mills.....	Dr. W. H. Haines	Paso Robles.....	B. B. Pierce
Eureka.....	Dr. L. A. Wing	Perris.....	A. F. Hardy
Exeter.....	Dr. A. D. McLean	Petaluma.....	Dr. J. M. Proctor
Fairfield.....	Dr. S. G. Bransford	Pinole.....	J. Chattleton
Ferndale.....	Dr. C. A. Phelan	Pittsburg.....	Dr. F. S. Gregory
Fort Bragg.....	Dr. L. C. Gregory	Placerville.....	P. J. Hall
Fort Jones.....	Thos. Bransom	Pleasanton.....	Dr. S. J. Wells
Fortuna.....	Dr. Geo. S. Loveren	Pomona.....	Dr. T. J. Wilson
Fowler.....	Dr. W. T. Crawford	Porterville.....	Dr. O. C. Higgins
Fresno.....	Dr. Geo. H. Aiken	Piedmont.....	Geo. T. Burtchael
Fullerton.....	Dr. F. J. Gobar	Point Arena.....	_____
Gilroy.....	Dr. John A. Clark	Potter Valley.....	_____
Glendale.....	Dr. R. E. Chase	Randsburg.....	E. B. McGinnes
Grass Valley.....	Paul E. Sears	Red Bluff.....	Dr. F. J. Bailey
Gridley.....	Dr. L. L. Thompson	Redding.....	L. D. Poole
Hanford.....	Dr. R. W. Musgrave	Redlands.....	Dr. Chas. E. Ide
Hayward.....	Dr. G. E. Reynolds	Redondo Beach.....	Dr. D. R. Hancock
Healdsburg.....	Dr. J. W. Seawell	Redwood City.....	Dr. J. L. Ross
Hemet.....	Dr. A. B. Eadie	Richmond.....	Dr. Chas. R. Blake
Hermosa Beach.....	G. A. Cleaveland	Rio Vista.....	Dr. A. J. McKinnon
Hercules.....	Dr. M. L. Fernandez	Riverside.....	Dr. Thos. R. Griffith
Hillsborough.....	_____	Rocklin.....	Dr. S. P. Rugg
Hollister.....	Dr. R. G. Curtis	Roseville.....	Dr. R. H. Ashby
Hollywood.....	E. O. Palmer	Ross.....	_____
Huntington Beach.....	Dr. G. A. Shank	Sacramento.....	Dr. Wm. K. Lindsay
Huntington Park.....	Dr. W. Thompson	Saint Helena.....	G. B. Anderson
Imperial.....	Dr. C. E. Standlee	Salinas.....	S. A. McCollum

LIST OF COUNTY HEALTH OFFICERS.

County.	Health officer.	Address.
Alameda	Dr. C. L. McKown	Niles
Alpine*	County Recorder Frank Smith	Markleeville
Amador	Dr. E. E. Endicott	Jackson
Butte	Dr. L. Q. Thompson	Gridley
Calaveras	Dr. Irwin B. March	San Andreas
Colusa	Dr. C. A. Poage	Colusa
Contra Costa	Dr. F. S. Gregory	Pittsburg
Del Norte	Dr. E. M. Fine	Crescent City
El Dorado	Dr. L. M. Leisenring	Placerville
Fresno	Dr. W. T. Burks	Fresno
Glenn	Dr. J. A. Randolph	Willows
Humboldt	Dr. E. H. Bryant	Eureka
Imperial	Dr. Virgil McCoombs	El Centro
Inyo	Dr. I. J. Woodin	Independence
Kern	Dr. G. M. Bumgarner	Bakersfield
Kings	Dr. Ralph Motherol	Hanford
Lake	Dr. W. E. Upton	Kelseyville
Lassen	Dr. W. E. Dozier	Susanville
Los Angeles	Dr. E. O. Sawyer	Los Angeles
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Fresno	Dr. W. T. Burks	Fresno
Glenn	Dr. J. A. Randolph	Willows
Humboldt	Dr. E. H. Bryant	Eureka
Imperial	Dr. Virgil McCoombs	El Centro
Inyo	Dr. I. J. Woodin	Independence
Kern	Dr. G. M. Bumgarner	Bakersfield
Kings	Dr. Ralph Motherol	Hanford
Lake	Dr. W. E. Upton	Kelseyville
Lassen	Dr. W. E. Dozier	Susanville
Los Angeles	Dr. E. O. Sawyer	Los Angeles
Madera	Dr. Mary R. Butin	Madera
Marin	Dr. J. H. Kuser	Novato
Mariposa	Dr. F. L. Wright	Mariposa
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Santa Cruz*	Dr. William Simpson	San Jose
Shasta		Santa Cruz
Sierra	Dr. F. Stabel	Redding
Siskiyou	Dr. R. B. Davy	Downieville
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Sonoma	Dr. S. G. Bransford	Suisun
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Tulare	Dr. J. H. Barr	Marysville

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Albany.....	Dr. Robt. Hector
Alhambra.....	Dr. F. E. Corey
Alturas.....	Dr. John Stille
Alviso.....	_____
Anaheim.....	Dr. J. L. Beebe
Antioch.....	Dr. W. S. George
Arcadia.....	_____
Arcata.....	Dr. G. W. McKinnon
Arroyo Grande.....	_____
Auburn.....	Jas. H. Breslin
Azusa.....	Dr. L. W. Atkinson
Bakersfield.....	S. D. Mullins
Belvedere.....	Dr. Florence Scott
Benicia.....	Dr. W. L. McFarland
Berkeley.....	Dr. J. J. Benton
Biggs.....	Dr. B. Caldwell
Bishop.....	Dr. J. W. Shute
Blue Lake.....	Dr. G. N. Wood
Brawley.....	Dr. L. L. Lindsey
Burbank.....	_____
Burlingame.....	_____
Calistoga.....	_____
Calexico.....	Dr. Wm. F. Smith
Chico.....	G. H. Taylor
Chino.....	Dr. John W. Callnon
Claremont.....	_____
Cloverdale.....	F. P. Conner
Coalinga.....	Dr. H. S. Warren
Colfax.....	Silas Ulery
Colton.....	Dr. L. A. J. La Motte
Colusa.....	Dr. C. A. Poage
Compton.....	J. W. Stone
Concord.....	Dr. F. F. Neff
Coram.....	Geo. H. Thomas
Corning.....	Dr. W. F. Maggard
Corona.....	Dr. W. H. Chapman
Coronado.....	Dr. Raffaele Lorini
Cottonwood.....	Dr. A. B. Gilliland
Covina.....	_____
Crescent City.....	_____
Daly City.....	_____
Davis.....	Dr. W. E. Bates
Delano.....	Dr. H. Hildreth
Dinuba.....	Dr. Wm. Whittington
Dorris.....	Dr. A. A. Atkinson
Dixon.....	W. C. Rhem
Dunsmuir.....	Dr. W. B. Mason
Eagle Rock.....	Dr. C. H. Phinney
Elsinore.....	Dr. Hugh Walker
Emeryville.....	Dr. A. T. Drennan
Escondido.....	Dr. David Crise
Etna Mills.....	Dr. W. H. Haines
Eureka.....	Dr. L. A. Wing
Exeter.....	Dr. A. D. McLean
Fairfield.....	Dr. S. G. Bransford
Ferndale.....	Dr. C. A. Phelan
Fort Bragg.....	Dr. L. C. Gregory
Fort Jones.....	Thos. Bransom
Fortuna.....	Dr. Geo. S. Loveren
Fowler.....	Dr. W. T. Crawford
Fresno.....	Dr. Geo. H. Aiken
Fullerton.....	Dr. F. J. Gobar
Gilroy.....	Dr. John A. Clark
Glendale.....	Dr. R. E. Chase
Grass Valley.....	Paul E. Sears
Gridley.....	Dr. L. L. Thompson
Hanford.....	Dr. R. W. Musgrave
Hayward.....	Dr. G. E. Reynolds
Healdsburg.....	Dr. J. W. Seawell
Hemet.....	Dr. A. B. Eadie
Hermosa Beach.....	G. A. Cleaveland
Hercules.....	Dr. M. L. Fernandez
Hillsborough.....	_____
Hollister.....	Dr. R. G. Curtis
Hollywood.....	E. O. Palmer
Huntington Beach.....	Dr. G. A. Shank
Huntington Park.....	Dr. W. Thompson
Imperial.....	Dr. C. E. Standlee

City.	Health officer.
Inglewood.....	Dr. H. A. Putnam
Jackson.....	F. V. Sanguinetti
Kennett.....	Dr. J. P. Sandholdt
Kernville.....	_____
King City.....	_____
Kingsburg.....	_____
Lakeport.....	Jabez Banks
Larkspur.....	_____
Lincoln.....	F. R. Elder
Lindsay.....	Dr. W. W. Tourtillot
Livermore.....	Dr. H. G. McGill
Lodi.....	Dr. F. W. Colman
Long Beach.....	Dr. W. H. Newman
Lompoc.....	_____
Lordsburg.....	Dr. J. E. Hubble
Los Angeles.....	Dr. L. M. Powers
Los Banos.....	Dr. J. L. McClelland
Los Gatos.....	Dr. C. K. Small
Loyalton.....	Dr. G. L. Coates
Madera.....	Dr. Mary R. Butin
Maricopa.....	Dr. H. N. Taylor
Martinez.....	Dr. E. E. Brown
Marysville.....	Wm. Meek
Mayfield.....	Dr. F. M. Selbert
McCloud.....	Dr. R. T. Legge
McKittrick.....	G. M. Chitwood
Merced.....	Dr. C. H. Castle
Mill Valley.....	Capt. M. Staples
Modesto.....	Dr. J. J. Knowlton
Montague.....	_____
Mojave.....	A. Smith
Monrovia.....	Dr. R. D. Adams
Monterey.....	Edward Allen
Morgan Hill.....	Dr. D. W. Watt
Mountain View.....	Dr. A. H. McFarlane
Napa.....	J. D. Treadway
National City.....	Dr. T. F. Johnson
Nevada City.....	Hugh Murchie
Newman.....	Dr. H. V. Armistead
Newport Beach.....	_____
Oakdale.....	Elmer E. Endicott
Oakland.....	Dr. E. N. Ewer
Ocean Side.....	Dr. R. S. Reid
Ocean Park.....	Dr. W. M. Kendall
Ontario.....	Dr. C. S. Orr
Orange.....	Dr. F. L. Champline
Orland.....	Dr. S. Goldman
Oroville.....	Dr. W. F. Gates
Oxnard.....	Dr. Ralph W. Avery
Pacific Grove.....	Dr. W. V. Grimes
Palo Alto.....	Hubert O. Jenkins
Pasadena.....	Dr. Stanley P. Black
Paso Robles.....	B. B. Pierce
Perris.....	A. F. Hardy
Petaluma.....	Dr. J. M. Proctor
Pinole.....	J. Chattleton
Pittsburg.....	Dr. F. S. Gregory
Placerville.....	P. J. Hall
Pleasanton.....	Dr. S. J. Wells
Pomona.....	Dr. T. J. Wilson
Porterville.....	Dr. O. C. Higgins
Piedmont.....	Geo. T. Burtchael
Point Arena.....	_____
Potter Valley.....	_____
Randsburg.....	E. B. McGinnes
Red Bluff.....	Dr. F. J. Bailey
Redding.....	L. D. Poole
Redlands.....	Dr. Chas. E. Ide
Redondo Beach.....	Dr. D. R. Hancock
Redwood City.....	Dr. J. L. Ross
Richmond.....	Dr. Chas. R. Blake
Rio Vista.....	Dr. A. J. McKinnon
Riverside.....	Dr. Thos. R. Griffith
Rocklin.....	Dr. S. P. Rugg
Roseville.....	Dr. R. H. Ashby
Ross.....	_____
Sacramento.....	Dr. Wm. K. Lindsay
Saint Helena.....	G. B. Anderson
Salinas.....	S. A. McCollum

LIST OF CITY HEALTH OFFICERS—Continued.

City.	Health officer.	City.	Health officer.
San Anselmo.....	Dr. Chipman	Stockton.....	Dr. R. T. McGurk
San Bernardino.....	Dr. C. V. McConnico	Susanville.....	Dr. E. S. Drucks
San Diego.....	Dr. F. H. Mead	Suisun.....	_____
San Francisco.....	Dr. R. G. Brodrick	Stanton.....	_____
Sanger.....	Dr. T. F. Madden	Sonoma.....	_____
San Jose.....	Dr. M. F. Hopkins	Taft.....	E. G. Wood
San Jacinto.....	Thos. Lloyd	Tehachapi.....	R. M. Spencer
San Juan.....	Henry Drake	Tracy.....	Dr. J. G. Murrell
San Luis Obispo.....	Dr. P. L. Rookledge	Tehama.....	_____
San Rafael.....	Dr. W. F. Jones	Tropico.....	_____
San Mateo.....	Dr. S. G. Goodspeed	Tulare.....	Dr. J. B. Rosson
San Leandro.....	P. C. Du Bois	Turlock.....	Dr. E. L. Clough
Santa Ana.....	Dr. J. I. Clark	Ukiah.....	Dr. J. Liftchild
Santa Barbara.....	Dr. D. A. Conrad	Upland.....	W. C. Redman
Santa Cruz.....	Dr. H. E. Piper	Vacaville.....	Dr. A. P. Finan
Santa Clara.....	Dr. J. F. Beattie	Vallejo.....	Dr. E. A. Peterson
Santa Monica.....	Dr. W. H. Parker	Ventura.....	J. H. Hardey
Santa Paula.....	Dr. B. E. Murriel	Visalia.....	Dr. A. W. Preston
Santa Rosa.....	Dr. Jackson Temple	Watsonville.....	Dr. F. H. Koepke
Santa Maria.....	Dr. O. P. Paulding	Watts.....	Dr. E. J. Richie
Sausalito.....	Dr. A. H. Mays	Wheatland.....	Dr. A. W. Foshay
Sawtelle.....	Dr. A. B. Hromadka	Whittier.....	Dr. W. H. Stokes
Selma.....	Dr. F. H. Williams	Willits.....	Dr. W. L. Blodgett
Sierra Madre.....	Dr. R. H. Mackerras	Willows.....	Thos. Kinkade
Sebastopol.....	Dr. J. J. Keating	Winters.....	Dr. J. H. Halle
Elsson.....	_____	Woodland.....	Peter Scott
South Pasadena.....	Dr. C. A. Whiting	Yreka.....	W. D. Doggett
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CALIFORNIA STATE BOARD OF HEALTH

MONTHLY BULLETIN

Vol. 7

MAY, 1912

No. 11

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THE CALIFORNIA STATE BOARD OF HEALTH

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REGULAR MEETINGS

The meetings of the California State Board of Health are held regularly the first Saturday of each month, but the quarterly meetings required by law to be held at the Capitol of the State are ordinarily designated as January, April, July, and October.

By courtesy of the University of California the Food and Drug Laboratory and the Hygienic Laboratory are located in University buildings at Berkeley, California.

Address all general communications to the

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MAY BULLETIN.

COMMENTS.

The Typhoid Harvest.

What would have happened to our national peace of mind and our commerce, if there had occurred in 1910-11 a half million cases of cholera with fifty thousand deaths! We know what happened to Italy during these two years with only sixteen thousand cases and six thousand deaths; and to Russia during its terrible experiences with cholera in the past four years. To the casual observer it would not seem to make much difference whether the disease were called cholera or by some other name, but it evidently does make a difference, for during the period in which the newspapers have been filled with Associated Press dispatches concerning cholera-ridden Russia and Italy, the typhoid fever-ridden United States has not been criticised by a line of print.

Typhoid fever takes 25,000 lives a year in this country and causes the expense, anxiety and loss of efficiency represented by 250,000 cases of typhoid illness a year, according to United States figures.* Thirty-three European cities, in Russia, Sweden, Norway, Austria-Hungary, Germany, Denmark, France, Belgium, Holland, England, Scotland, and Ireland, aggregating 31,500,000 population, show a death rate from typhoid fever of 6.5 per 100,000 population, as against 25 per 100,000 population for fifty American cities of over 100,000, aggregating over 20,000,000 population. Such figures are not creditable to the United States, but they prove that one of our big national problems is the control of water-borne diseases. They also prove that our safety from cholera depends solely on the success of the U. S. Public Health Service in keeping cholera *out* of the country.

Every summer and autumn typhoid reaps its harvest in California—six hundred deaths a year in this one State! The loss of this number of citizens in any spectacular way would rouse the public beyond the possibility of further indifference. It is the spectacular feature of cholera that constitutes our greatest safeguard. A man sickens one day, dies the next, and is followed to the cemetery within the week by half his fellow-townsmen. This rouses the public and the disease is fought desperately and with success. Typhoid works more adroitly. To be sure, it makes its spectacular raids, too, but for the most part it plays the part of the Apache, striking swiftly and surely here and there, only to be far upon the trail toward other victims before the news reaches the neighboring settlement. It is hard, under such conditions, to rouse the nation to a policy of extermination.

In fighting such diseases as typhoid fever and malaria the people of the United States must be taught the significance of death rates and annual totals before their coöperation can be expected. In the mean time the typhoid harvest will continue.

*Data taken from Reprint No. 76, U. S. P. H. Reports (1912), by Allan J. McLaughlin.

**The Domestic Use of
Untreated Surface Waters.**

The installation of treatment systems for the purification of the water supplies of cities drawn from surface streams has usually been accompanied by a lowered general death rate and a special reduction in deaths from typhoid fever. Yet it has frequently happened that, prior to the purification treatment, there had never been any conspicuous outbreak of water-borne disease in the community. This is true of the first group of cities given below. The deaths from typhoid fever, however, during the past five years, as contrasted with the deaths in the cities of the second group, present a basis for interesting study. Probably water is not the only factor in the prevalence of typhoid in the first group, but only the installation of adequate filtration systems, or provision for a pure water supply from other sources, will show how far other factors enter into the problem.

Group.	Estimated popula- tion: 1908.	Federal census popula- tion: 1910.	Deaths: 1907.		Deaths: 1908.		Deaths: 1909.		Deaths: 1910.		Deaths: 1911.		Total deaths: 1907 to 1911	
			All causes.	Typhoid Fever.	All causes.	Typhoid Fever.	All causes.	Typhoid Fever.	All causes.	Typhoid Fever.	All causes.	Typhoid Fever.	All causes.	Typhoid Fever.
I. River Cities—														
Redding	3,850	3,752	86	8	90	2	54	1	51	0	65	3	346	14
Red Bluff	2,864	3,530	62	3	60	2	76	2	63	3	56	3	317	13
Oolusa	1,529	1,582	12	1	26	5	19	2	22	4	21	3	100	15
Sacramento	31,602	44,666	713	25	755	30	698	21	734	14	828	19	3,728	109
Rio Vista	706	884	8	0	10	2	5	0	12	0	12	2	47	4
Totals	40,551	54,444	881	37	941	41	852	26	882	21	982	30	4,588	155
II. Coast Cities—														
Pacific Grove	1,475	2,384	51	0	41	0	60	0	40	0	46	0	238	0
Monterey	1,820	4,923	40	1	76	0	82	3	62	1	59	0	319	5
Watsonville	4,632	4,446	73	2	108	2	108	0	85	1	70	0	434	5
Salinas	4,080	3,736	58	0	63	1	68	2	51	0	52	1	292	4
Santa Barbara	7,163	11,659	190	6	175	1	208	3	223	5	215	4	1,006	19
San Diego	19,620	39,578	666	7	701	5	601	0	687	1	817	7	3,472	20
Totals	38,790	66,726	1,078	16	1,159	9	1,117	8	1,148	8	1,259	12	5,761	53

NOTE.—These groups were selected and published in 1908; Group II being made up to give approximately at that time the same total of population appearing for Group I. Since 1908 changes of population and methods of deriving water supply have changed somewhat in both groups, but the five-year period has been carried out to illustrate the general argument that surface unheated water supplies are dangerous.

It will be seen by this table that in Group I there were fewer deaths from all causes in Group I every year, but that, for typhoid, Group I had from two to four times as many cases as Group II. Stated in a different way—Group I shows for the entire five-year period one typhoid death to each 29.3 deaths from all causes; as against one typhoid death to each 108.7 deaths from all causes in Group II.

Of course, 155 deaths from typhoid fever in five years is not a large number for any group of five cities, but it represents at least 1,550 cases of the disease that should not have occurred. This, however, is merely an academic statement. The actual elimination of typhoid requires much to be done—much in the way of money and of personal coöperation among various classes of people. Such coöperation and expenditures will not ordinarily be forthcoming for protection against such low loss of life as given in the above illustration, but the public should be taught the truth that lies behind such a record, *i. e.*, wherever typhoid smolders as it is doing in these river cities there is always a possibility that at any time it may flare up into a most disastrous epidemic. It is to inhibit this potential menace, as well as incidentally to save the few from sickness and death, that every modern method of combating typhoid fever should be employed.

* * * * *

The Fly and the Surface Privy.

Much has been written during the past two years about the “typhoid” fly. It is not easy, however, to obtain concrete data on fly-borne epidemics. The figures,* therefore, for Jacksonville, Florida, are especially valuable.

A careful epidemiological study was made of 329 cases of typhoid in 1910. These cases bore no relation to milk, water, or sewage. They had no common factors except that collectively they made a seasonal curve very closely approximating the fly prevalence curve. The city has many open privies scattered throughout its area. Even in the sewered portion there exist a good many. The investigation showed that probably 25,000 people were using open privies accessible to flies. The general records for several years, during which case-records had been kept, showed typhoid especially prevalent in the unsewered or privy sections of the city. The 329 cases studied were divided as follows: One hundred and thirty-two in the sewered portion, 197 in the dry closet district. The city passed an ordinance regulating the construction and maintenance of dry closets, requiring them to be fly-proof. Without other apparent changes in the city affecting typhoid prevalence the total cases in 1911 dropped to 158—93 being in the sewered district and only 65 in the dry closet district.

California is filled with beautiful summer resorts that are dependent on the dry earth closet. These summer hotels are particularly dangerous to the population of the entire State, because the “typhoid” fly may travel between the open privy and the dining table all summer, possibly infecting large numbers of persons, without any one of the victims ever remaining long enough to become ill at the hotel. This is possible because most guests stay less than two weeks at any one of these resorts, and will consequently be at home again before they become ill after infection with typhoid.

*Published in the Florida Health Notes for April, 1912, by Dr. C. E. Terry, Jacksonville City Health Officer.

The following conclusions as given in the April, 1912, "Health Notes" of the Florida State Board of Health are worth transcribing here as applicable to our mountain resorts:

First. Where infectious material, as in open privies, exists in a community with exposed food supplies together with an abundance of flies, active measures against this insect are a public health necessity.

Second. The house fly may be practically eliminated from municipalities by the proper construction of horse stables with especial reference to water-tight, well-drained floors and the prompt removal of manure; the rendering fly-proof of surface privies and the abolition of garbage dumps.

Third. The burying of infectious material if fly-blown, at any practical depth, will not prevent either the maturing of the contained larvæ or the dissemination of infection by the flies hatching therefrom.

Fourth. Trapping, especially early in each fly season, is a practical auxiliary measure."

* * * * *

The Dairy and the Bacterial Count.

Milk has ever been the great battleground between the anti-germ eaters and the germ-ignorers. Both these factions of pseudo-scientific thought do great harm. Says the anti-germ eater, "I wouldn't touch milk for the world. It is full of germs! unless it is hard boiled and then it is indigestible," etc. Says the germ-ignorant, "You are a poor lunatic. The scientists themselves are not consistent. They count the germs in milk and tell you there should not be more than 500 or 10,000 (as the case may be) to the drop, if it is to be good milk. Then in the same breath they say the lactic acid bacillus (the germ most frequent in milk) is good for you. This germ theory is all nonsense anyway. Eat, drink milk, and be merry, for its only the thought of germs that can hurt you."

The bacteriologist finds it hard to explain to the public that the bacterial count only gives him an index to the age and cleanliness and temperature conditions under which the milk was handled. It does not replace the dairy inspection, or examination of the cows. It is, however, a most valuable index, and often leads, through the detection of sudden increases in the bacterial count, to special dairy inspections which are the means of preventing widespread epidemics of disease among milk users. The safeguarding of milk from contamination by typhoid discharges is one of the great methods of fighting the disease. Palo Alto had no rigid inspection regulations for dairies prior to 1903. In that year the lightning struck, apparently from a clear sky, but investigation showed that the great epidemic of typhoid which caused 238 cases, with nearly a score of deaths, was due (not to lightning) but to the kind-heartedness of a farmer's wife and the friendliness of her neighbors. Had this farmer's wife not invited her sick cousin (a laborer ill with typhoid fever in San Francisco) to come to her house to be nursed by her, and had the neighboring dairyman not attended the funerals of the cousin and the farmer's wife when they both died of the fever, the dairyman and his child would not have developed typhoid, and the milk which he handled would not have been contaminated, and—Palo Alto would not have had its great epidemic.

**The Summer Camp
and the Transient Laborer.**

When a patient is recovering from typhoid fever, the physician frequently says: "Now I want you to spend three or four weeks in the mountains regaining your strength before you go back to your work." There is no examination of the patient's discharges to make sure he will not distribute typhoid bacilli in the fly infested or water contaminating toilets of the hotels to which he will go. Luckily most of these patients are not dangerous after they are able to travel. The records of the State Board of Health, however, show some notable and disastrous exceptions to this rule. The release from typhoid fever isolation precautions should be much more carefully supervised than is the case at present. Rocklin and Loomis suffered in 1910 from a typhoid epidemic because a transient laborer, convalescing from typhoid chanced to join a camp of laborers located on the banks of the surface ditch supplying the towns with "pure" mountain drinking water.

* * * * *

**The Human
Carrier of Typhoid.**

The valuable piece of scientific work, recently done by Dr. W. A. Sawyer, Director of the Bureau of the Hygienic Laboratory, in tracing the source of typhoid fever on the ship Acme, beautifully illustrates another phase of the typhoid control problem. This ship had developed among its crew so many victims of typhoid in the course of a few years that it became known among sailors as the fever ship. The investigation finally demonstrated that one of the crew was the agent in transmitting the disease to all the others (some twenty-eight in all). This man was apparently well and entirely unconscious of being a source of danger to the lives of his fellow sailors. When he took the common drinking cup and dipped it into the barrel of drinking water he did not know he was periodically contaminating this water with typhoid bacilli which escaped from his soiled hands, to be subsequently swallowed by other susceptible members of the crew. This man represents a type of persons who are capable of spreading the disease long after all physical evidences of their having been ill have disappeared. There are still other persons similarly dangerous to the public, but who have never been known to have had the disease itself. These persons are known as "carriers."

Not until the public realizes that there are many ways of combating typhoid fever and that the battle must be waged all along the line, will we be able to make much further progress in lowering the death rate from this disease.

REPORT OF BUREAU OF ADMINISTRATION FOR APRIL.

JOHN F. LEINEN, Director, Executive Division.

During the month of April there were 2,184 letters received and 2,386 letters sent. One hundred and seventy-three subjects were treated. This increase over previous months is due to numerous requests from local communities for advice and literature concerning the best means of eradicating house flies and mosquitoes.

The continued spread of rabies and new outbreaks of smallpox also added to the general routine.

Advice regarding precautionary measures against the possible spread of typhoid fever during the summer months has been furnished to a number of persons throughout the State, especially those contemplating vacations.

Municipalities and corporations sewerage into streams have had their attention called to the stream pollution law of 1911.

Outbreaks of communicable diseases have been followed up and health officers have been assisted in preventing the spread of infection. Complete histories of cases have been obtained.

Letters have been received asking for information and advice relative to the construction of septic tanks, fresh air sleeping porches and tents, garbage disposal, health laws and ordinances, housing conditions, infant mortality, milk and meat, industrial diseases, pure food and drug regulations, water examinations, quarantine, contagious and infectious diseases, ventilation, disinfection, sanitation of schools, railroad cars and river craft, slaughterhouses, and many other subjects too numerous to mention.

REPORT OF BUREAU OF VITAL STATISTICS FOR MARCH.

GEORGE D. LESLIE, Statistician.

State Totals and Annual Rates.—The following table shows for California as a whole the birth, death, and marriage totals for the current and preceding months in comparison with those for the corresponding months of a year ago, as well as the annual rates per 1,000 population represented by the totals for the current and preceding months. The rates are based on an estimated midyear population of 2,579,874 for California in 1912, the estimate having been made by the Census Bureau method with slight modifications.

Birth, Death and Marriage Totals, with Annual Rates per 1,000 Population for Current and Preceding Months for California: March.

Month.	MONTHLY TOTAL.		Annual rate per 1,000 population: 1912.
	1912.	1911.	
March—			
Births	3,306	2,818	15.1
Deaths	3,363	3,001	15.4
Marriages	1,816	1,705	8.3
February—			
Births	3,062	2,530	15.0
Deaths	3,080	2,788	15.0
Marriages	2,184	1,785	10.7

The birth, death, and marriage totals for March, as for February, were much greater in 1912 than in 1911, the birth totals increasing especially. Thus the birth totals in 1912 exceeded those in 1911 by 488 for March (3,306 as compared with 2,818), and by 532 for February (3,062 against 2,530), as well as by 458 for January (3,059 against 2,601).

County Totals.—The first table on the following page shows the monthly birth, death, and marriage totals for the principal counties of the State, the list being limited to counties having a population of at least 25,000 according to the Federal Census of 1910. Totals are also shown for San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), as well as for Los Angeles and Orange counties together.

City Totals.—The second table on the following page gives the birth and death totals for the principal freeholders' charter cities, the list including all chartered cities with a census population of at least 15,000 in 1910. The totals are given likewise for San Francisco in comparison with Oakland, Alameda, and Berkeley, the three cities adjoining one another on the east shore of San Francisco Bay, as well as for Los Angeles in comparison with neighboring chartered cities (Long Beach, Pasadena, Pomona, and Santa Monica).

Birth, Death, and Marriage Totals, for Principal Counties: March.

County.	March, 1912.		
	Births.	Deaths.	Marriages.
California -----	3,306	3,363	1,816
Counties of more than 25,000 population (1910):			
Alameda -----	327	294	137
Butte -----	23	40	25
Contra Costa -----	27	37	9
Fresno -----	156	98	56
Humboldt -----	31	36	14
Kern -----	62	47	34
Los Angeles -----	855	797	459
Marin -----	17	27	82
Orange -----	55	54	74
Riverside -----	47	52	24
Sacramento -----	127	112	61
San Bernardino -----	90	89	35
San Diego -----	73	118	71
San Francisco -----	561	652	367
San Joaquin -----	39	75	38
San Mateo -----	31	32	24
Santa Barbara -----	43	31	21
Santa Clara -----	126	145	57
Santa Cruz -----	58	34	5
Solano -----	53	25	7
Sonoma -----	44	50	21
Tulare -----	34	43	25
Selected groups:			
San Francisco and other bay counties -----	963	1,042	619
Los Angeles and Orange counties -----	910	851	533

Birth and Death Totals, for Principal Cities: March.

City.	March, 1912.	
	Births.	Deaths.
Freeholders' charter cities.....	2,107	2,058
Cities of more than 15,000 population (1910):		
Alameda	40	27
Berkeley	47	34
Fresno	70	36
Long Beach.....	31	27
Los Angeles.....	589	516
Oakland	225	186
Pasadena	44	59
Riverside	19	23
Sacramento	112	101
San Diego.....	51	92
San Francisco.....	561	652
San Jose.....	43	44
Stockton	24	46
Selected groups:		
San Francisco.....	561	652
Oakland, Alameda and Berkeley.....	312	247
Total, Bay cities.....	873	899
Los Angeles.....	589	516
Neighboring cities.....	95	104
Total	684	620

Causes of Death.—The following table shows the classification of deaths in California for the current month, in comparison with the preceding month:

Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths for Current and Preceding Months for California: March.

Cause of death.	Deaths: March.	Proportion per 1,000.	
		March.	February.
ALL CAUSES	3,363	1,000.0	1,000.0
Typhoid fever	25	7.4	5.8
Malarial fever	6	1.8	0.3
Smallpox	—	—	0.3
Measles	29	8.6	5.2
Scarlet fever	4	1.2	1.3
Whooping-cough	11	3.3	2.9
Diphtheria and croup.....	20	6.0	4.9
Influenza	24	7.1	3.3
Other epidemic diseases.....	20	6.0	3.9
Tuberculosis of lungs	413	122.8	139.3
Tuberculosis of other organs.....	81	24.1	19.5
Cancer	203	60.4	54.9
Other general diseases.....	175	52.0	37.3
Meningitis	29	8.6	10.1
Other diseases of nervous system.....	257	76.4	74.0
Diseases of circulatory system.....	610	181.4	176.6
Pneumonia and broncho-pneumonia.....	317	94.3	106.5
Other diseases of respiratory system.....	97	28.8	28.2
Diarrhea and enteritis, under 2 years.....	65	19.3	17.9
Diarrhea and enteritis, 2 years and over.....	20	5.9	9.7
Other diseases of digestive system.....	182	54.1	54.2
Bright's disease and nephritis.....	203	60.4	59.1
Childbirth	26	7.7	11.0
Diseases of early infancy.....	91	27.1	36.4
Suicide	66	19.6	20.5
Other violence	227	67.5	72.1
All other causes.....	162	48.2	44.8

In March there were 610 deaths, or 18.1 per cent of all, from diseases of the circulatory system, and 494, or 14.7 per cent from various forms of tuberculosis. Heart disease thus led tuberculosis greatly.

Other notable causes of death were: Diseases of the respiratory system, 414; violence, 293; diseases of nervous system, 286; diseases of digestive system, 267; Bright's disease and nephritis, 203; cancer, likewise 203; and epidemic diseases, 139.

The deaths from epidemic diseases were as follows: Measles, 29; typhoid fever, 25; influenza, 24; diphtheria and croup, 20; whooping-cough, 11; and all other epidemic diseases, 30.

The deaths from the three leading epidemic diseases reported for the month were distributed by counties as follows:

Measles.		Typhoid Fever.		Influenza.	
Butte	2	Alameda	2	Alameda	1
Contra Costa	1	Contra Costa	1	Fresno	2
Kern	1	Fresno	2	Kings	1
Placer	1	Humboldt	2	Los Angeles	3
Sacramento	3	Imperial	1	Plumas	1
San Francisco	15	Kern	4	Sacramento	3
San Joaquin	1	Los Angeles	3	San Diego	2
Santa Clara	2	Marin	1	San Francisco	1
Solano	1	Merced	1	San Joaquin	2
Sonoma	2	Napa	1	San Luis Obispo	2
Total	29	Riverside	1	Santa Barbara	1
		San Bernardino	1	Santa Clara	1
		San Diego	2	Sierra	1
		San Francisco	1	Stanislaus	1
		Santa Clara	2	Tehama	2
		Total	25	Total	24

Geographic Divisions.—The following table presents data for geographic divisions, including the metropolitan area, or San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), in comparison with the rural counties of Northern and Central California:

Deaths from Main Classes of Diseases, for Geographic Divisions: March.

Geographic divisions.	Deaths: March.										
	All causes	Epidemic diseases	Tuberculosis (all forms)	Cancer	Diseases of nervous system	Diseases of circulatory system	Diseases of respiratory system	Diseases of digestive system	Bright's disease and nephritis	Violence	All other causes
THE STATE	3,363	139	494	203	286	610	414	267	203	293	454
Northern California	385	23	42	19	27	79	45	29	18	39	64
Coast counties	198	8	24	13	18	43	20	15	8	19	30
Interior counties	187	15	18	6	9	36	25	14	10	20	34
Central California	1,812	85	218	120	144	334	257	163	97	157	237
San Francisco	652	31	77	39	50	124	89	66	35	55	86
Other bay counties	390	12	45	38	34	83	56	24	22	34	42
Coast counties	237	8	26	14	22	49	38	18	10	16	36
Interior counties	533	34	70	29	38	78	74	55	30	52	73
Southern California	1,166	31	234	64	115	197	112	75	88	97	153
Los Angeles	797	19	166	50	74	145	70	45	61	65	102
Other counties	369	12	68	14	41	52	42	30	27	32	51
Northern and Central California	2,197	108	260	139	171	413	302	192	115	196	301
Metropolitan area	1,042	43	122	77	94	207	145	90	57	89	128
Rural counties	1,155	65	138	62	77	206	157	102	58	107	173

Sex and Age Periods.—The proportion of the sexes among the 3,363 decedents in March was: Male, 2,038, or 60.6 per cent; and female, 1,325, or 39.4 per cent.

The following table shows the age distribution, by numbers and per cents, of deaths classified by sex:

Deaths Classified by Sex and Age Periods, with Per Cents by Age Periods, for California: March.

Age period.	Deaths.			Per cent.		
	Total	Male.	Female.	Total	Male.	Female.
ALL AGES-----	3,363	2,038	1,325	100.0	100.0	100.0
Under 1 year-----	301	168	133	8.9	8.2	10.1
1 to 4 years-----	150	70	80	4.5	3.4	6.0
5 to 14 years-----	95	47	48	2.8	2.3	3.6
15 to 24 years-----	184	104	80	5.5	5.1	6.0
25 to 34 years-----	308	194	114	9.2	9.5	8.6
35 to 44 years-----	400	252	148	11.9	12.4	11.2
45 to 54 years-----	392	254	138	11.6	12.5	10.4
55 to 64 years-----	437	279	158	13.0	13.7	11.9
65 years and over-----	1,096	670	426	32.6	32.9	32.2

This table shows that relatively more females than males died at under 1 year, 1 to 4 years, 5 to 14 years, 15 to 24 years, and at 65 years and over. In the age periods from 25 to 64 years, however, there were relatively more deaths among men than among women, generally speaking. That is, death comes to men mainly during years of active mature life, but takes females especially in infancy, childhood, and youth, as well as at extreme old age.

Occupations.—The table below gives, for deaths 15 years and over, the number of men and women for whom some occupation was reported in contrast with those for whom no gainful occupation was shown:

Deaths 15 Years and Over Classified by Sex and Occupation, with Per Cents by Sex, for California: March.

	Deaths.			Per cent male.	Per cent female.
	Total.	Male.	Female.		
15 years and over-----	2,817	1,753	1,064	62.2	37.8
Occupation reported -----	1,569	1,478	91	94.2	5.8
No gainful occupation-----	1,248	275	973	22.0	78.0

Of the 1,569 decedents for whom occupations were reported the males numbered 1,478, or 94.2 per cent, and the females only 91, or 5.8 per cent.

The following table shows the distribution of male decedents 15 years and over, engaged in the main kinds of occupation :

Deaths of Males 15 Years and Over Engaged in Gainful Occupations, Classified by Kind of Occupation, with Per Cents, for California : March.

Kind of occupation.	Males 15 years and over.	
	Deaths.	Per cent.
All occupations -----	1,478	100.0
Professional -----	80	5.4
Clerical and official -----	122	8.3
Mercantile and trading -----	130	8.8
Public entertainment -----	33	2.2
Personal service, police and military -----	40	2.7
Laboring and servant -----	283	19.1
Manufacturing and mechanical industry -----	287	19.4
Agriculture, transportation, and other outdoor -----	487	33.0
All other occupations -----	16	1.1

Of the 1,478 male decedents for whom occupations were reported 487, or 33.0 per cent, were engaged in agriculture, transportation and other outdoor pursuits; 287, or 19.4 per cent, in manufacturing and mechanical industry; 283, or 19.1 per cent, in laboring and servant work; and altogether 421, or 28.5 per cent, in professional, clerical and official, mercantile and trading, and all other occupations.

Morbidity Report for March, 1912.

Disease.	Cases.	Placed.
Smallpox -----	81	18
Scarlet fever -----	98	23
Diphtheria -----	92	22
Mumps -----	157	12
Measles -----	759	32
German measles -----	1	1
Pneumonia -----	82	11
Tuberculosis -----	163	18
Typhoid -----	36	15
Poliomyelitis -----	3	3
Syphilis -----	2	2
Gonorrhœa -----	9	5
Chickenpox -----	76	9
Whooping cough -----	38	5
Cerebro-spinal meningitis -----	4	3
Hookworm -----	20	1
Erysipelas -----	30	6
Tuberculous meningitis -----	3	3
Glanders -----	1	1
Malaria -----	6	2
Influenza -----	32	2
Tonsillitis -----	29	1
Croup -----	7	2
Trachoma -----	2	2
Leprosy -----	1	1
Pemphigus -----	1	1
Scabies -----	1	1
Rotheln -----	1	1
Total -----	1,735	203

REPORT OF BUREAU OF THE HYGIENIC LABORATORY FOR APRIL.

WILBUR A. SAWYER, M.D., Director.

Glanders.

Except on these rare instances when it is suspected that human beings are infected with glanders the State Hygienic Laboratory does not make examinations for this disease. The work of controlling glanders among horses and mules of California, involving both field and laboratory investigations, is under the direction of Charles Keane, D.V.S., State Veterinarian, with office at Sacramento. In order to assist in this important work, the State Board of Health has given the use of space and equipment in the State Hygienic Laboratory to Charles A. Pyle, D.V.S., in order that he may assist Dr. Keane by carrying on complement fixation tests of blood for glanders.

During the month of March, 1912, Dr. Pyle completed the preparation of the materials needed in the tests and examined the blood of fifteen horses. Eight of these gave positive results. Seven of the specimens failed to show evidence of glanders, and in one case the result was in doubt. The United States Bureau of Animal Industry has found complement fixation tests of blood to be of decided value in examinations for glanders, and it is gratifying to find this delicate method in use in our State.

Specimens for examination for glanders should not be sent to this laboratory except under instruction from Dr. Keane. As has already been stated, examinations for glanders in horses are conducted by Dr. Keane's staff and it is only for the purpose of obtaining the necessary laboratory facilities that part of the work is carried on in the State Hygienic Laboratory.

State Medical Meeting.

At the annual session of the State Medical Society held at Del Monte, April 16, 17, and 18, the State Hygienic Laboratory maintained a scientific exhibit. Microscopic slides of brain tissue showing Negri bodies from cases of human and canine rabies in the present epidemic were shown. The method of preparing antirabic virus for use in the Pasteur treatment was illustrated by an exhibit of fixed virus, rabbit cord in Pasteur drying bottle, and the finished material. Sample mailing outfits for use in sending specimens to the State Hygienic Laboratory or its three branches were exhibited. One of the bacteriological instruction outfits for use by teachers was shown as an illustration of the part being taken in the instruction of the public along public health lines.

Division of Biological Examinations.

Summary of Examinations Made in the California State Hygienic Laboratory During the Month of April, 1912.

Condition suspected.	Positive.	Negative.	Inconclusive.	Total.
Main Laboratory at Berkeley:				
Anthrax -----		4		4
Diphtheria -----	43	73	2	118
Gonococcus -----	6	2		8
Malaria -----		6		6
Rabies -----	20	4		24
Tuberculosis -----	8	37		45
Typhoid -----	1	31	1	33
Water -----		2		2
Miscellaneous -----	1	1	1	3
				243
Northern Branch at Sacramento:				
Tuberculosis -----	1	1		2
				2
San Joaquin Valley Branch at Fresno:				
Diphtheria -----		3		3
Tuberculosis -----	1	2		3
Typhoid -----		4		4
				10
Southern Branch at Los Angeles:				
Diphtheria -----	3	5		8
				8
Total number of examinations -----				263

Division of Preventive Therapeutics.

Pasteur Treatment for the Prevention of Rabies by the State Hygienic Laboratory During the Month of April, 1912.

	Treatment commenced.	Treatment completed.
Main Laboratory at Berkeley -----	0	0
Northern Branch at Sacramento -----	2	0
San Joaquin Valley Branch at Fresno -----	2	0
Southern Branch at Los Angeles -----	0	0
Laboratory of Sacramento Board of Health, by deputized bacteriologist -----	0	0
Laboratory of San Francisco Board of Health, by deputized bacteriologist -----	28	17
Laboratory of Los Angeles Board of Health, by deputized bacteriologist -----	0	1
Laboratory of Letterman General Hospital, Presidio, by deputized bacteriologist -----	2	4
	34	22

Bureau of the Hygienic Laboratory.

Participation in Instruction in Public Health During April, 1912.

Main Laboratory at Berkeley:	
Bacteriological instruction outfits sent out -----	3
Bacteriological instruction outfits in use -----	26
Exhibits loaned from hygienic museum, sent out -----	0
Exhibits loaned from hygienic museum, in use -----	2
Number of models or other pieces of apparatus in above exhibits -----	9
Lectures or talks by the Director -----	4

Division of Epidemiological Investigations.

Epidemiological Investigations During April, 1912.

Main Laboratory at Berkeley:

Special investigations by the Director..... 2
 Investigation of an ambulatory case of typhoid in traveling inspector for steamship company.
 Collection of statistics regarding the prevalence of rables in the State of California from April 1, 1911, to April 1, 1912.

REPORT OF PURE FOOD AND DRUG LABORATORY FOR APRIL.

PROFESSOR M. E. JAFFA, Director.

The work of the State Laboratory during April has been of a miscellaneous character, the samples examined including those of milk, flavoring syrups, extracts, beverages, meats, vinegars, and condiments. It may be said that in addition to the examination of what are termed "official samples," that is, samples collected and submitted by inspectors, considerable work has been done on the supplies for the state hospitals and other state institutions. It may be further stated that since such examinations have been conducted at the State Laboratory, the quality of supplies furnished to the institutions of the State are far better than was the quality previous to the time when samples were submitted to this laboratory for analysis.

Definitions.

Definitions of terms adopted by the Association of Feed Control Officials of the United States, in meeting at Columbus, Ohio, Nov. 17 and 18, 1911.

Meal is the clean, sound, ground product of the entire grain, cereal or seed which it purports to represent, provided that the following meals, qualified by their descriptive names, are to be known as, viz.: *Corn germ meal* is a product in the manufacture of starch, glucose and other corn products and is the germ layer from which a part of the corn oil had been extracted. *Linseed meal* is the ground residue after extraction of part of the oil from ground flax seed.

Grits are the hard flinty portions of Indian corn without hulls and germ.

Hominy meal, *hominy feed* or *hominy chop* is a mixture of the bran coating, the germ and a part of the starchy portion of the corn kernel.

Corn feed meal is the sifting obtained in the manufacture of cracked corn and table meal made from the whole grain.

Corn bran is the outer coating of the corn kernel.

Wheat bran is the coarse outer coatings of the wheat berry.

Shorts or *standard middlings* are the fine particles of the outer and inner bran separated from bran and white middlings.

Shipstuff or *wheat mixed feed* is a mixture of the products other than the flour from the milling of the wheat berry.

Red dog is a low grade wheat flour containing the finer particles of bran.

Oat groats are the kernels of the oat berry with the hulls removed.

Oat shorts are the covering of the oat grain lying immediately inside the hull, being a fuzzy material carrying with it considerable portions of the fine floury part of the groat obtained in the milling of rolled oats.

Oat middlings are the floury portion of the groat obtained in the milling of rolled oats.

Oat hulls are the outer coverings of the oat grain.

Rice hulls are the outer covering of the rice grain.

Rice bran is the cuticle beneath the hull.

Rice polish is the finely powdered material obtained by polishing the kernel.

Flax plant by-product is that portion of the flax plant remaining after the separation of the seed, the baste fiber and the portion of the shives, and consists of flax shives, flax pods, broken and immature flax seeds and the corticle tissue of the stem.

Buckwheat shorts or *buckwheat middlings* are that portion of the buckwheat grain immediately inside of the hull after separation from the flour.

Blood meal is ground dried blood.

Meat scrap and *meat meal* are the ground residues from animal tissue exclusive of hoof and bone. If they contain any considerable amount of bone, they must be designated meat and bone scrap, or meat and bone meal. If they bear a name descriptive of their kind, composition or origin, they must correspond thereto.

Cracklings are the residue after partially extracting the fats and oils from the animal tissue. If they bear a name descriptive of their kind, composition or origin, they must correspond thereto.

Digester tankage is the residue from animal tissue exclusive of hoof and horn, specially prepared for feeding purposes by tanking under live steam, drying under high heat, and suitable grinding. If it contains any considerable amount of bone, it must be designated digester meat and bone tankage.

Distillers' dried grains are the dried residue from cereals obtained in the manufacture of alcohol and distilled liquors. The product shall bear the designation indicating the cereal predominating.

Brewers' dried grains are the proper dried residue from cereals obtained in the manufacture of beer.

Malt sprouts are the sprouts of the barley grain. If the sprouts are derived from any other malted cereal, the source must be designated.

Alfalfa meal is the entire alfalfa hay ground, and does not contain an admixture of ground alfalfa straw or other foreign materials.

Chop is a ground or chop feed composed of one or more different cereals or by-products thereof. If it bears a name descriptive of the kind of cereals, it must be made exclusively of the entire grains of those cereals.

Screenings are the smaller imperfect grains, weed seeds and other foreign material having feeding value, separated in cleaning the grain.

The following is the summary of food and drug cases ordered referred to the district attorney, May 4, 1912:

FOOD AND DRUG CASES ORDERED REFERRED TO DISTRICT ATTORNEYS.

May 4, 1912.

Name of article.	Offense.	Manufacturer or jobber.	Accused dealer.	Locality.
Milk -----	Adulterated, below standard in fat. Misla- beled, not standard milk.	-----	A. H. Sneed-----	-----Oakland
Pork sausage -----	Adulterated by substitution of foreign fat---	Buena Vista Market, H. F. Stolz, Prop.	H. F. Stolz-----	San Francisco
Milk -----	Adulterated, below standard in fat. Misla- beled, not standard milk.	-----	J. Kopacevich -----	-----Oakland
Arrowhead water ---	Mislabeled, deficient in mineral salts. Adul- terated, substitution of other waters.	Arrowhead Springs Water Co., F. A. McDonald, Secy.	(Dealer protected by guaranty.)	---Los Angeles
Banana syrup -----	Mislabeled. Contains coal-tar color not de- clared.	-----	A. S. Jouroyan-----	---Los Angeles
Pineapple syrup ----	Mislabeled. Contains coal-tar color not de- clared.	-----	Peter Pulos -----	---Los Angeles
Texas Tommy cock- tail, manufactured by L. A. Oyster Cocktail Co.	Mislabeled. Contains benzoates not declared.	J. B. Ingram-----	(Dealer protected by guaranty.)	---Los Angeles
Frankfurter sausage Champagne-----	Mislabeled. Contains cereal; not declared-- Adulterated. Artificially carbonated. Misla- beled. Label indicates product to be a Clicquot champagne.	Oscar Angermann----- -----	Oscar Angermann ----- Maxim's Saloon -----	San Francisco San Francisco

REPORT OF BUREAU OF PUBLICATIONS AND HEALTH INFORMATION.

G. P. JONES, Acting Director.

There is a great demand on the part of California citizens for information regarding the construction of the septic tank for disposal of domestic sewage and to meet this demand the Board has a supply of Bulletins and Bulletin Separates dealing with the subject in a general way. Without the services of a trained engineer it is impossible to apply the plans of a septic tank to conditions in a given locality with any guarantee of successful operation. However, the subject is covered in a manner that will no doubt make the pamphlets useful to any who contemplate the construction of a septic tank.

There is also a large supply of literature on the subject of tuberculosis; some of it designed for the use of adults and some for the special use of children. This matter will be sent free of all charge to any club, society or individual desiring it for distribution.

The following lectures were delivered by members of the staff during the month of April:

April 2d, at Berkeley, "Practical Health Administration," by John F. Leinen, before the class in Public Health and Hygiene at the University of California.

April 4th, at Berkeley, "The Operation of the Pure Food Law and Work of the State Food and Drug Laboratory," by Prof. M. E. Jaffa, before the class in Public Health and Hygiene at the University of California.

April 11th, at Berkeley, "Vital Statistics," by George D. Leslie, before the class in Public Health and Hygiene at the University of California.

April 16th, at Del Monte, "The New Division of Epidemiology of the Hygienic Laboratory of the California State Board of Health," by Dr. W. A. Sawyer, at the opening session of the annual meeting of the California State Medical Society.

April 18th, at Del Monte, "Certified Milk and Operation of the State Law With Reference to Same," by Prof. M. E. Jaffa, at the annual meeting of the California State Medical Society.

April 18th, at Del Monte, "The California Tuberculosis Commission," by Dr. William F. Snow, at the annual meeting of the California State Medical Society.

April 19th, at Berkeley, "Rabies," by Dr. W. A. Sawyer, before the class on Infection and Immunity at the University of California.

April 22d, at San Francisco, "A Typhoid Carrier on Shipboard," by Dr. W. A. Sawyer, before the California Academy of Medicine.

April 23, at Berkeley, "The Present Situation with regard to Rabies in the Vicinity of Berkeley," by Dr. W. A. Sawyer, before the Berkeley City Council.

LIST OF COUNTY HEALTH OFFICERS.

County.	Health officer.	Address.
Alameda	Dr. C. L. McKown	Niles
Alpine*	County Recorder Frank Smith	Markleeville
Amador	Dr. E. E. Endicott	Jackson
Butte	Dr. L. Q. Thompson	Gridley
Calaveras	Dr. Irwin B. March	Angels Camp
Colusa	Dr. C. A. Poage	Colusa
Contra Costa	Dr. F. S. Gregory	Pittsburg
Del Norte	Dr. E. M. Fine	Crescent City
El Dorado	Dr. L. M. Leisenring	Placerville
Fresno	Dr. W. T. Burks	Fresno
Glenn	Dr. J. A. Randolph	Willows
Humboldt	Dr. E. H. Bryant	Eureka
Imperial	Dr. Virgil McCoombs	El Centro
Inyo	Dr. I. J. Woodin	Independence
Kern	Dr. G. M. Bumgarner	Bakersfield
Kings	Dr. Ralph Motherol	Hanford
Lake	Dr. W. E. Upton	Kelseyville
Lassen	Dr. W. E. Dozier	Susanville
Los Angeles	Dr. E. O. Sawyer	Los Angeles
Madera	Dr. Mary R. Butin	Madera
Marin	Dr. J. H. Kuser	Novato
Mariposa	Dr. F. L. Wright	Mariposa
Mendocino	Dr. J. Liftchild	Ukiah
Merced	Dr. C. H. Castle	Merced
Modoc	Dr. John Stille	Alturas
Mono*	County Recorder Geo. Delury	Bridgeport
Monterey	Dr. Garth Parker	Salinas
Napa	Dr. E. Z. Hennessey	Napa
Nevada	Dr. Carl P. Jones	Grass Valley
Orange	Dr. John Wehrly	Santa Ana
Placer	Dr. O. L. Barton	Loomis
Plumas	Dr. F. D. Walsh	Quincy
Riverside	Dr. George E. Tucker	Riverside
Sacramento	Dr. Hugh Beattie	Elk Grove
San Benito	Dr. J. M. O'Donnell	Hollister
San Bernardino	Dr. Phillip M. Savage	San Bernardino
San Diego	Dr. Nathan Hunt	San Diego
San Francisco	Dr. R. G. Brodrick	San Francisco
San Joaquin	Dr. R. B. Knight	Stockton
San Luis Obispo	Dr. H. M. Cox	San Luis Obispo
San Mateo	Dr. W. G. Beattie	Colma
Santa Barbara	Dr. J. C. Bainbridge	Santa Barbara
Santa Clara	Dr. William Simpson	San Jose
Santa Cruz	Dr. W. R. Congdon	Santa Cruz
Shasta	Dr. F. Stabel	Redding
Sierra	Dr. R. B. Davy	Downieville
Siskiyou	Dr. F. J. McNulty	Yreka
Solano	Dr. S. G. Bransford	Suisun
Sonoma	Dr. P. A. Meneray	Santa Rosa
Stanislaus	Dr. F. R. De Lappe	Modesto
Sutter	Dr. J. McFadyen	Yuba City
Tehama	Dr. J. S. Cameron	Red Bluff
Trinity	Dr. D. B. Fields	Weaverville
Tulare	Dr. W. A. Preston	Visalia
Tuolumne	Dr. Wm. Lyman Hood	Sonora
Ventura	Dr. A. A. Maulhardt	Oxnard
Yolo	Dr. W. J. Blevins	Woodland
Yuba	Dr. J. H. Barr	Marysville

*This county has not been able to arrange with any physician to act as health officer.

LIST OF CITY HEALTH OFFICERS.

City.	Health officer.	City.	Health officer.
Alameda.....	Dr. A. Hieronymus	Inglewood.....	Dr. H. A. Putnam
Albany.....	Dr. Robt. Hector	Jackson.....	F. V. Sanguinetti
Alhambra.....	Dr. F. E. Corey	Kennett.....	Dr. J. P. Sandholdt
Alturas.....	Dr. John Stile	Kernville.....	_____
Alviso.....	_____	King City.....	_____
Anaheim.....	Dr. J. L. Beebe	Kingsburg.....	_____
Antioch.....	Dr. W. S. George	Lakeport.....	Jabez Banks
Arcadia.....	_____	Larkspur.....	_____
Arcata.....	Dr. G. W. McKinnon	Lincoln.....	F. R. Elder
Arroyo Grande.....	_____	Lindsay.....	Dr. W. W. Tourtillot
Auburn.....	_____	Livermore.....	Dr. H. G. McGill
Azusa.....	Dr. L. W. Atkinson	Lodi.....	Dr. F. W. Colman
Bakersfield.....	S. D. Mullins	Long Beach.....	Dr. W. H. Newman
Belvedere.....	Dr. Florence Scott	Lompoc.....	_____
Benicia.....	Dr. W. L. McFarland	Lordsburg.....	Dr. J. E. Hubble
Berkeley.....	Dr. J. J. Benton	Los Angeles.....	Dr. L. M. Powers
Biggs.....	Dr. B. Caldwell	Los Banos.....	Dr. J. L. McClelland
Bishop.....	Dr. J. W. Shute	Los Gatos.....	Dr. C. K. Small
Blue Lake.....	Dr. G. N. Wood	Loyalton.....	Dr. G. L. Coates
Brawley.....	Dr. L. L. Lindsey	Madera.....	_____
Burbank.....	_____	Maricopa.....	Dr. H. N. Taylor
Burlingame.....	_____	Martinez.....	Dr. E. E. Brown
Calistoga.....	_____	Marysville.....	Wm. Meek
Calexico.....	Dr. Wm. F. Smith	Mayfield.....	Dr. F. M. Selbert
Chico.....	G. H. Taylor	McCloud.....	Dr. R. T. Legge
Chino.....	Dr. John W. Callnon	McKittrick.....	G. M. Chitwood
Claremont.....	_____	Merced.....	Dr. C. H. Castle
Cloverdale.....	F. P. Conner	Mill Valley.....	Capt. M. Staples
Coalinga.....	Dr. H. S. Warren	Modesto.....	Dr. J. J. Knowlton
Colfax.....	_____	Montague.....	_____
Colton.....	Dr. L. A. J. La Motte	Mojave.....	A. Smith
Colusa.....	Dr. C. A. Poage	Monrovia.....	Dr. C. D. Gaylord
Compton.....	J. W. Stone	Monterey.....	Edward Allen
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Daly City.....	_____	Oakland.....	Dr. E. N. Ewer
Davis.....	Dr. W. E. Bates	Ocean Side.....	Dr. R. S. Reid
Delano.....	Dr. H. Hildreth	Ocean Park.....	Dr. W. M. Kendall
Dinuba.....	Dr. Wm. Whittington	Ontario.....	Dr. C. S. Orr
Dorris.....	Dr. A. A. Atkinson	Orange.....	Dr. F. L. Champline
Dixon.....	W. C. Rhem	Orland.....	Dr. S. Goldman
Dunsmuir.....	Dr. W. B. Mason	Oroville.....	Dr. W. F. Gates
Eagle Rock.....	Dr. C. H. Phinney	Oxnard.....	Dr. Ralph W. Avery
Elsinore.....	Dr. Hugh Walker	Pacific Grove.....	Dr. W. V. Grimes
Emeryville.....	Dr. A. T. Drennan	Palo Alto.....	Hubert O. Jenkins
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Fairfield.....	Dr. S. G. Bransford	Pinole.....	J. Chatleton
Ferndale.....	Dr. C. A. Phelan	Pittsburg.....	Dr. F. S. Gregory
Fort Bragg.....	Dr. L. C. Gregory	Placerville.....	P. J. Hall
Fort Jones.....	Thos. Bransom	Pleasanton.....	Dr. S. J. Wells
Fortuna.....	Dr. Geo. S. Loveren	Pomona.....	Dr. T. J. Wilson
Fowler.....	Dr. W. T. Crawford	Porterville.....	Dr. O. C. Higgins
Fresno.....	Dr. Geo. H. Aiken	Piedmont.....	Geo. T. Burtchael
Fullerton.....	Dr. F. J. Gobar	Point Arena.....	_____
Gilroy.....	Dr. John A. Clark	Potter Valley.....	_____
Glendale.....	Dr. R. E. Chase	Randsburg.....	E. B. McGinnes
Grass Valley.....	Paul E. Sears	Red Bluff.....	Dr. F. J. Bailey
Gridley.....	Dr. L. L. Thompson	Redding.....	L. D. Poole
Hanford.....	Dr. R. W. Musgrave	Redlands.....	Dr. Chas. E. Ide
Hayward.....	Dr. G. E. Reynolds	Redondo Beach.....	Dr. D. R. Hancock
Healdsburg.....	Dr. J. W. Seawell	Redwood City.....	Dr. J. L. Ross
Hemet.....	Dr. A. B. Eadie	Richmond.....	Dr. Chas. R. Blake
Hermosa Beach.....	G. A. Cleaveland	Rio Vista.....	Dr. A. J. McKinnon
Hercules.....	Dr. M. L. Fernandez	Riverside.....	Dr. Thos. R. Griffith
Hillsborough.....	_____	Rocklin.....	Dr. S. P. Rugg
Hollister.....	Dr. R. G. Curtis	Roseville.....	Dr. R. H. Ashby
Hollywood.....	E. O. Palmer	Ross.....	_____
Huntington Beach.....	Dr. G. A. Shank	Sacramento.....	Dr. Wm. K. Lindsay
Huntington Park.....	Dr. W. Thompson	Saint Helena.....	S. H. Pettit
Imperial.....	Dr. C. E. Standlee	Salinas.....	S. A. McCollum

LIST OF CITY HEALTH OFFICERS—Continued.

City.	Health officer.	City.	Health officer.
San Anselmo.....	Dr. Chipman	Stockton.....	Dr. R. T. McGurk
San Bernardino.....	Dr. C. V. McConnico	Susanville.....	Dr. E. S. Drucks
San Diego.....	Dr. F. H. Mead	Suisun.....	_____
San Francisco.....	Dr. R. G. Brodrick	Stanton.....	_____
Sanger.....	Dr. T. F. Madden	Sonoma.....	_____
San Jose.....	Dr. M. F. Hopkins	Taft.....	E. G. Wood
San Jacinto.....	Thos. Lloyd	Tehachapi.....	R. M. Spencer
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San Luis Obispo.....	Dr. P. L. Rookledge	Tehama.....	_____
San Rafael.....	Dr. W. F. Jones	Tropico.....	_____
San Mateo.....	Dr. S. G. Goodspeed	Tulare.....	Dr. J. B. Rosson
San Leandro.....	P. C. Du Bois	Turlock.....	Dr. E. L. Clough
Santa Ana.....	Dr. J. I. Clark	Ukiah.....	Dr. J. Liftchild
Santa Barbara.....	Dr. D. A. Conrad	Upland.....	W. C. Redman
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Santa Clara.....	Dr. J. F. Beattie	Vallejo.....	Dr. E. A. Peterson
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Santa Paula.....	Dr. B. E. Murrill	Visalia.....	Dr. A. W. Preston
Santa Rosa.....	Dr. Jackson Temple	Watsonville.....	Dr. F. H. Koepke
Santa Maria.....	Dr. O. P. Paulding	Watts.....	Dr. E. J. Richie
Sausalito.....	Dr. A. H. Mays	Wheatland.....	Dr. A. W. Foshay
Sawtelle.....	Dr. A. B. Hromadka	Whittier.....	Dr. W. H. Stokes
Selma.....	Dr. F. H. Williams	Willits.....	Dr. W. L. Blodgett
Sierra Madre.....	Dr. R. H. Mackerras	Willows.....	Thos. Kinkade
Sebastopol.....	Dr. J. J. Keating	Winters.....	Dr. J. H. Haile
Sisson.....	_____	Woodland.....	Peter Scott
South Pasadena.....	Dr. C. A. Whiting	Yreka.....	W. D. Doggett
South San Francisco.....	Dr. H. G. Plymire	Yuba City.....	_____

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CALIFORNIA STATE BOARD OF HEALTH

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THE CALIFORNIA STATE BOARD OF HEALTH

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Divisions: Executive Division; Legal Division; Division of Morbidity Returns; Division of Sewage Disposal and Water Supplies.

2. Bureau of Vital Statistics.

GEORGE D. LESLIE, PH.B., Director and Statistician.

Divisions: Reports; Official Records; Statistics.

3. Bureau of the Hygienic Laboratory.

WILBUR A. SAWYER, M.D., Director.

Divisions: Biological Examinations; Preventive Therapeutics; Epidemiological Investigations.

4. Bureau of Foods and Drugs.

MYER E. JAFFA, M.S., Director.

Divisions: Division of Inspections; Division of Laboratory Examinations; Division of Food and Drug Standards.

5. Bureau of Publications and Health Information.

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Attorney for the Board.....Security Savings Bank Building, Los Angeles

CHARLES GILMAN HYDE, C.E.

Consulting Engineer for the Board.....University of California

F. F. GUNDRUM, M.D.

Division Bacteriologist and Field Officer.....Inverness Building, Sacramento

W. W. CROSS, M.D.

Division Bacteriologist and Field Officer.....Patterson Block, Fresno, California

STANLEY P. BLACK, M.D.

Division Bacteriologist and Field Officer.....Auditorium Building, Los Angeles

REGULAR MEETINGS

The meetings of the California State Board of Health are held regularly the first Saturday of each month, but the quarterly meetings required by law to be held at the Capitol of the State are ordinarily designated as January, April, July, and October.

By courtesy of the University of California the Food and Drug Laboratory and the Hygienic Laboratory are located in University buildings at Berkeley, California.

Address all general communications to the

SECRETARY, Sacramento, California.

JUNE BULLETIN.

REPORT OF BUREAU OF ADMINISTRATION FOR MAY, 1912.

JOHN F. LEINEN, Director.

Executive Division.

One of the principal duties which devolves upon the Executive Division is that of the dissemination of expert knowledge in all cases pertaining to sanitation. Such knowledge is greatly needed in many localities of the State, especially by the smaller villages and communities which, either through lack of knowledge and experience in sanitation or through lack of funds, do not know what course to pursue when they have to face problems affecting the general health. Advice of this general nature has been freely given in all cases where it has been asked for and in many other cases where it was evident that a community was considering a course that was apparently inconsistent with its future interest.

It has been of considerable assistance to local health authorities in aiding them to draft rules and regulations, and as the work of the local authorities is gradually placed on a higher plane, the State Board of Health can be of even greater assistance in obtaining uniformity in health work throughout the State.

Efforts have been made to bring about uniformity in recording statistics relating to health work of all kinds.

Investigations have been made, through local health officers, of public nuisances due to insanitary slaughterhouses, septic tanks, cesspools, dairies, expectoration in public places, improper sewage disposal, polluted water supplies, garbage disposal, meat markets, bakeries, lumber camps, mosquito breeding places, manure heaps, inadequate drainage, etc.

Fly swatting campaigns have been successful throughout the State. Mosquito slamming crusades will come next.

Division of Sewage Disposal and Water Supplies.

Owing to increased interest and activity in matters relating to water supplies and sewage disposal throughout the State, there has been a marked increase in the work. Examination of plans for sewerage and sewage disposal and issuing of permits for the discharge of sewage into the streams of the State constituted a considerable portion of the work of the division during the month.

In work of this nature, plans for the following municipalities have been either completed or are in preparation :

Rio Vista	Placerville	Oakdale
Red Bluff	Sacramento	Dunsmuir
Colfax	Auburn	Los Gatos
Fortuna	Jackson	Orland
Winters	Grass Valley	Chico
Weaverville	Sisson	Nevada City
Lodi	Portola	Sebastopol
Saratoga	Ukiah	Sonora

Division of Morbidity Returns.

Special attention is given to communicable and contagious diseases occurring in the State.

The blanks, used for reporting cases, have been much improved and there is a gratifying increase of care on the part of local health officers in properly filling them out. Also, reports have been sent in much more promptly, and the number of reports received has corresponded more accurately to the number of cases in existence, than formerly, for instance: The March blanks were returned from 179 cities and towns; in April they were returned from 242; while in May, returns were received from 292 cities and towns.

Typhoid fever. Los Angeles and San Francisco tied for first place with 14 cases. Oakland was next with 7 cases. Tehachapi was next with 3 cases. Bakersfield, Fullerton, Long Beach and Sacramento, each had 2 cases, while Berkeley, Mountain View, Napa, Orange, Riverside, Salinas, Brawley, San Diego and San Leandro are credited with 1 case each.

Rural. Imperial County, 14 cases; Sacramento County, 2; Contra Costa County and Santa Clara County, 1 each. Total, 73.

Smallpox. Sacramento reported 12 cases, Los Angeles, 8, San Francisco 4, Visalia 3, Oakland, Auburn and San Bernardino 2 each, Pasadena, Tulare, San Diego, Kennett and Alturas reported 1 each.

Rural. Butte County, 11 cases; Los Angeles County, 5; Sacramento County, 4; Tulare County, 2; Shasta, Modoc and Ventura counties, each 1. Total, 63.

Diphtheria. Los Angeles, 51 cases; San Francisco, 15; Oakland, 12; Berkeley, 11; Pomona. 8; Pasadena, 5. Total, 102.

Scarlet fever. San Bernardino, 20 cases; San Francisco, 16; Oakland, 9; Fresno and Los Angeles, 8 each; San Jose and Riverside, 3 each; San Luis Obispo, Sacramento and Monrovia, 2 each.

Rural. Los Angeles County, 9; San Bernardino County, 8; Kern County, 6; Santa Clara County, 4. Total, 110.

Morbidity Report for May, 1912.

	Cases.	Places.
Smallpox -----	63	20
Scarlet fever -----	120	28
Diphtheria -----	119	22
Mumps -----	68	10
Measles -----	625	32
German measles -----	3	2
Pneumonia -----	42	7
Tuberculosis -----	181	14
Typhoid fever -----	72	20
Gonorrhea -----	17	7
Syphilis -----	3	3
Chicken pox -----	110	11
Whooping cough -----	68	10
Epidemic cerebro spinal meningitis -----	1	1
Tonsilitis -----	1	1
Erysipelas -----	20	7
Malaria -----	5	3
Scabies -----	1	1
Trichiniasis -----	1	1
Glanders -----	3	1
Trachoma -----	53	1
Impetigo contagiosa -----	1	1
Totals -----	1,577	203

Legal Division.

Citations were served on sixty-four violators of the California Pure Food and Drugs Act, summoning them to appear before the Board at its regular meeting, May 4, 1912.

Opinions were rendered by the attorney for the Board on the following questions: Relation of State institutions with the State Board of Health, Registration of Births, Fees for Vital Statistical Work, Correction of Death Certificates, Rules for Examination of Vital Statistics Records, Stream Pollution Law, Authority to Perform Autopsies, Assuming Control of Typhoid Carriers, Vaccination, Sanitary Districts and Mosquito Control, Milk Ordinances, Tenement House Law, etc.

REPORT OF BUREAU OF VITAL STATISTICS FOR APRIL.

GEORGE D. LESLIE, Statistician.

State Totals and Annual Rates.—The following table shows for California as a whole the birth, death, and marriage totals for the current and preceding months in comparison with those for the corresponding months of last year, as well as the annual rates per 1,000 population represented by the totals for the current and preceding months. The rates are based on an estimated midyear population of 2,579,874 for California in 1912, the estimate having been made by the Census Bureau method with slight modifications.

Birth, Death and Marriage Totals, with Annual Rates per 1,000 Population for Current and Preceding Months for California: April.

Month.	MONTHLY TOTAL.		Annual rate per 1,000 population: 1912.
	1912.	1911.	
April—			
Births -----	3,180	2,799	15.0
Deaths -----	3,038	2,666	14.4
Marriages -----	2,365	1,997	11.2
March—			
Births -----	3,306	2,818	15.1
Deaths -----	3,363	3,001	15.4
Marriages -----	1,816	1,705	8.3

The birth, death and marriage totals for April, as for preceding months, were much greater in 1912 than in 1911. The birth registration has been much greater each month this year than in the corresponding month of last year.

County Totals.—The first table on the following page shows the monthly birth, death, and marriage totals for the principal counties of the State, the list being limited to counties having a population of at least 25,000 according to the Federal Census of 1910. Totals are also shown for San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), as well as for Los Angeles and Orange counties together.

City Totals.—The second table on the following page gives the birth and death totals for the principal freeholders' charter cities, the list including all chartered cities with a census population of at least 15,000 in 1910. Totals are given likewise for San Francisco in comparison with Oakland, Alameda, and Berkeley, the three cities adjoining one another on the east shore of San Francisco Bay, as well as for Los

Angeles in comparison with neighboring chartered cities (Long Beach, Pasadena, Pomona, and Santa Monica).

Birth, Death and Marriage Totals, for Principal Counties: April.

County.	APRIL, 1912.		
	Births.	Deaths.	Marriages.
California -----	3,180	3,038	2,365
Counties of more than 25,000 population (1910):			
Alameda -----	314	304	212
Butte -----	41	35	23
Contra Costa -----	30	24	20
Fresno -----	118	71	83
Humboldt -----	34	30	30
Kern -----	36	41	33
Los Angeles -----	763	782	570
Marin -----	39	23	59
Orange -----	43	42	107
Riverside -----	36	31	26
Sacramento -----	118	76	82
San Bernardino -----	75	79	47
San Diego -----	118	105	91
San Francisco -----	597	554	445
San Joaquin -----	46	103	52
San Mateo -----	55	20	24
Santa Barbara -----	30	24	28
Santa Clara -----	94	106	99
Santa Cruz -----	40	33	16
Solano -----	20	38	12
Sonoma -----	49	59	35
Tulare -----	47	37	20
Selected groups:			
San Francisco and other bay counties -----	1,035	925	760
Los Angeles and Orange counties -----	806	824	677

Birth and Death Totals, for Principal Cities: April.

City.	APRIL, 1912.	
	Births.	Deaths.
Freeholders' charter cities -----	2,023	1,857
Cities of more than 15,000 population (1910):		
Alameda -----	23	26
Berkeley -----	25	33
Fresno -----	48	25
Long Beach -----	24	25
Los Angeles -----	545	517
Oakland -----	218	187
Pasadena -----	47	43
Riverside -----	21	17
Sacramento -----	93	63
San Diego -----	87	73
San Francisco -----	597	554
San Jose -----	36	37
Stockton -----	26	51
Selected groups:		
San Francisco -----	597	554
Oakland, Alameda and Berkeley -----	291	246
Total, Bay cities -----	888	800
Los Angeles -----	545	517
Neighboring cities -----	83	96
Total -----	628	613

Causes of Death.—The following table shows the classification of deaths in California for the current month, in comparison with the preceding month:

Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths for Current and Preceding Month, for California: April.

Cause of death.	Deaths: April.	Proportion per 1,000.	
		April.	March.
ALL CAUSES-----	3,038	1,000.0	1,000.0
Typhoid fever-----	25	8.2	7.4
Malarial fever-----	4	1.3	1.8
Smallpox-----	1	0.3	-----
Measles-----	21	6.9	8.6
Scarlet fever-----	3	1.0	1.2
Whooping-cough-----	18	5.9	3.3
Diphtheria and croup-----	15	4.9	6.0
Influenza-----	17	5.6	7.1
Other epidemic diseases-----	12	4.0	6.0
Tuberculosis of lungs-----	383	126.1	122.8
Tuberculosis of other organs-----	76	25.0	24.1
Cancer-----	190	62.5	60.4
Other general diseases-----	157	51.7	52.0
Meningitis-----	39	12.8	8.6
Other diseases of nervous system-----	233	76.7	76.4
Diseases of circulatory system-----	531	174.8	181.4
Pneumonia and broncho-pneumonia-----	259	85.3	94.3
Other diseases of respiratory system-----	74	24.4	28.8
Diarrhea and enteritis, under 2 years-----	38	12.5	19.3
Diarrhea and enteritis, 2 years and over-----	22	7.2	5.9
Other diseases of digestive system-----	166	54.6	54.1
Bright's disease and nephritis-----	187	61.6	60.4
Childbirth-----	33	10.9	7.7
Diseases of early infancy-----	121	39.8	27.1
Suicide-----	74	24.4	19.6
Other violence-----	219	72.1	67.5
All other causes-----	120	39.5	48.2

In April there were 531 deaths, or 17.5 per cent of all, from diseases of the circulatory system, and 4.59, or 15.1 per cent from various forms of tuberculosis. Heart disease thus led tuberculosis greatly.

Other notable causes of death were: Diseases of the respiratory system, 333; violence, 293; diseases of nervous system, 272; diseases of digestive system, 226; cancer, 190; Bright's disease and nephritis, 187, and epidemic diseases, 116.

The deaths from epidemic diseases were as follows: Typhoid fever, 25; measles, 21; whooping-cough, 18; influenza, 17; diphtheria and croup, 15; and all other epidemic diseases, 20.

The deaths from the three leading epidemic diseases reported for the month were distributed by counties as follows:

Typhoid Fever.		Measles.		Whooping-cough.	
Alameda	4	Alameda	1	Butte	1
Amador	1	Butte	2	Fresno	1
Humboldt	1	Fresno	2	Kern	1
Imperial	1	Orange	1	Kings	1
Kings	1	Sacramento	2	Los Angeles	5
Los Angeles	7	San Francisco	10	Monterey	1
Marin	1	Santa Clara	2	Orange	1
Merced	2	Sonoma	1	Riverside	1
Napa	1	Total	21	San Bernardino	1
Orange	1			San Francisco	1
Placer	1			Solano	3
San Benito	1			Tulare	1
San Francisco	2			Total	18
San Joaquin	1				
Total	25				

Geographic Divisions.—The following table presents data for geographic divisions, including the metropolitan area, or San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), in comparison with the rural counties of Northern and Central California:

Deaths from Main Classes of Diseases, for Geographic Divisions: April.

Geographic division.	DEATHS, APRIL.										
	All causes.	Epidemic diseases.	Tuberculosis (all forms).	Cancer.	Diseases of nervous system.	Diseases of circulatory system.	Diseases of respiratory system.	Diseases of digestive system.	Diseases of genitourinary system.	Violence.	All other causes.
THE STATE	3,038	116	459	190	272	531	333	226	187	293	431
Northern California	320	12	36	21	34	62	38	19	18	30	50
Coast counties	155	6	19	7	19	47	16	9	8	12	22
Interior counties	165	6	17	14	15	25	22	10	10	18	28
Central California	1,608	52	215	108	135	300	186	120	93	169	230
San Francisco	554	17	76	37	43	97	65	54	28	42	95
Other bay counties	371	9	57	33	31	65	43	24	20	42	47
Coast counties	183	4	18	10	20	33	24	18	16	14	26
Interior counties	500	22	61	28	11	105	54	24	29	71	62
Southern California	1,110	52	208	61	103	169	109	87	76	94	151
Los Angeles	782	36	155	47	63	122	74	57	60	58	110
Other counties	328	16	53	14	40	47	35	30	16	36	41
Northern and Central California	1,928	61	251	129	169	362	224	139	111	199	280
Metropolitan area	925	26	133	70	74	162	108	78	48	84	142
Rural counties	1,003	35	118	59	95	200	116	61	63	115	138

Sex and Age Periods.—The proportion of the sexes among the 3,038 decedents in April was: Male, 1,827, or 60.1 per cent, and female, 1,211, or 39.9 per cent.

The following table shows the age distribution by numbers and per cents, of deaths classified by sex:

Deaths Classified by Sex and Age Periods, with Per Cents by Age Periods, for California: April.

Age period.	Deaths.			Per cent.		
	Total.	Male.	Female.	Total.	Male.	Female.
ALL AGES-----	3,038	1,827	1,211	100.0	100.0	100.0
Under 1 year-----	304	161	143	10.0	8.8	11.8
1 to 4 years-----	145	73	72	4.8	4.0	6.0
5 to 14 years-----	77	41	36	2.5	2.2	3.0
15 to 24 years-----	187	90	97	6.2	4.9	8.0
25 to 34 years-----	317	203	114	10.4	11.1	9.4
35 to 44 years-----	366	236	130	12.1	12.9	10.7
45 to 54 years-----	358	233	125	11.8	12.8	10.3
55 to 64 years-----	390	252	138	12.8	13.8	11.4
65 years and over-----	894	538	356	29.4	29.5	29.4

This table shows that relatively more females than males died at under 1 year, 1 to 4 years, 5 to 14 years, and 15 to 24 years, or at each age period under 25 years of age.

Occupations.—The table below gives, for deaths 15 years and over, the number of men and women for whom some occupation was reported in contrast with those for whom no gainful occupation was shown:

Deaths, Fifteen Years and Over, Classified by Sex and Occupation, with Per Cents by Sex, for California: April.

	Deaths.			Per cent male.	Per cent female.
	Total.	Male.	Female.		
15 YEARS AND OVER-----	2,512	1,552	960	61.8	38.2
Occupation reported-----	1,432	1,345	87	93.9	6.1
No gainful occupation-----	1,080	207	873	19.2	80.8

Of the 1,432 decedents for whom occupations were reported the males numbered 1,345, or 93.9 per cent, and the females only 87, or 6.1 per cent.

The following table shows the distribution of male decedents 15 years and over, engaged in the main kinds of occupation:

Deaths of Males, Fifteen Years and Over, Engaged in Gainful Occupations, Classified by Kinds of Occupation, with Per Cents, for California: April.

Kind of occupation.	Males 15 years and over.	
	Deaths.	Per cent.
ALL OCCUPATIONS-----	1,345	100.0
Professional-----	73	5.4
Clerical and official-----	95	7.1
Mercantile and trading-----	105	7.8
Public entertaining-----	22	1.6
Personal service, police and military-----	32	2.4
Laboring and servant-----	288	21.4
Manufacturing and mechanical industry-----	286	21.3
Agriculture, transportation and other outdoor-----	430	32.0
All other occupations-----	14	1.0

Of the 1,345 male decedents for whom occupations were reported 430, or 32.0 per cent, were engaged in agriculture, transportation, and other outdoor pursuits; 286, or 21.3 per cent, in manufacturing and mechanical industry; 288, or 21.4 per cent, in laboring and servant work; and altogether 341, or 25.3 per cent, in professional, clerical and official, mercantile and trading, and all other occupations.

REPORT OF BUREAU OF THE HYGIENIC LABORATORY FOR MAY.

WILBUR A. SAWYER, M.D., Director.

Pasteur Institute.

On May 18, 1912, the State Board of Health took final action establishing a Pasteur Institute as a department of the State Hygienic Laboratory. At the request of the Board a representative of the United States Public Health and Marine Hospital Service inspected the laboratory on June 3, 1912. The Pasteur Institute was found to be entirely satisfactory, and from the date of inspection all the virus sent out has been manufactured at the laboratory.

No change has been made in the method of distributing or administering antirabic virus or in the arrangements for making diagnostic examinations for rabies. Patients are accepted for treatment only when they are unable to pay the necessary expense of procuring treatment from private physicians. The decision regarding the financial ability of persons to pay for treatment lies chiefly with the local health officer, to whom applications for treatment should be made. All the virus issued by the State is administered by officers of the State Board of Health at laboratories in Berkeley, Sacramento, San Francisco, Fresno, and Los Angeles.

The Pasteur Institute of the California State Board of Health is, as far as the Director knows, the first to be established west of Austin, Texas. The increase of rabies in California made it imperative that there should be a place of manufacture close at hand. Production of the virus within the State permits shortening the time interval between manufacture and administration and also diminished the risk of delay in transit or of shortage in the supply.

In the regular tabulated report will be found the stations at which antirabic treatment is administered and also the results of the diagnostic examinations for rabies.

Summary of Examinations Made in the California State Hygienic Laboratory During the Month of May, 1912.

Condition suspected.	Positive.	Negative.	Inconclusive.	Total.
Main Laboratory at Berkeley:				
Anthrax		1		1
Diphtheria	15	40		55
Gonococcus infection	4	1		5
Malaria	2	4		6
Rabies	29	3	1	33
Tuberculosis	16	28		44
Typhoid	4	13		17
Water	1	3	2	6
Hookworm		1		1
Miscellaneous		4		4
	71	98	3	172
San Joaquin Valley Branch at Fresno:				
Diphtheria			1	1
Tuberculosis	2			2
	2		1	3
Southern Branch at Los Angeles:				
Diphtheria	3	4		7
Typhoid		2		2
	3	6		9
Northern Branch at Sacramento:				
Diphtheria		2		2
Tuberculosis	1	8		9
Typhoid		2		2
Malaria		1		1
	1	13		14
Total number of examinations.....				198

Pasteur Treatment for the Prevention of Rabies by the State Hygienic Laboratory During the Month of May, 1912.

	Treatment commenced.	Treatment completed.
Main Laboratory at Berkeley.....	8	0
Northern Branch at Sacramento.....	1	2
San Joaquin Valley Branch at Fresno.....	0	2
Southern Branch at Los Angeles.....	0	0
Laboratory of Sacramento Board of Health, by deputized bacteriologist	0	0
Laboratory of San Francisco Board of Health, by deputized bacteriologist	22	21
Laboratory of Los Angeles Board of Health, by deputized bacteriologist	0	0
Laboratory of Letterman General Hospital, Presidio, by deputized bacteriologist	2	0
	33	25

Bureau of the Hygienic Laboratory.

Participation in Instruction in Public Health During May, 1912.

Main Laboratory at Berkeley:	
Bacteriological instruction outfits sent out.....	0
Bacteriological instruction outfits in use.....	17
Exhibits loaned from hygienic museum sent out.....	0
Exhibits loaned from hygienic museum in use.....	2
Number of models or other pieces of apparatus in above exhibits.....	9
Lectures or talks by the Director.....	0

Division of Epidemiological Investigations.

Main Laboratory at Berkeley:

- Special investigations by the Director..... 4
 Investigation of two cases of trichinosis.
 Completion of the investigation of a case of ambulatory typhoid.
 Investigation of a case of rabies in a dog which ran twenty-five miles distributing the disease.
 Investigation of the history of a rabid dog brought from Fresno to Berkeley during the incubation period, with the result that five people were bitten in Berkeley and Oakland.

REPORT OF BUREAU OF FOOD AND DRUGS FOR MAY.

The following Food Inspection Decisions have been received at the Laboratory and it would appear that they are of such vital interest to both manufacturer and consumer that they are here reprinted:

Food Inspection Decision 139.**USE OF THE TERM "SWEET OIL."**

From time to time this department has received inquiries asking whether or not it is permissible, under the Food and Drug Act, to label cottonseed oil as "sweet oil." Investigations have shown that some samples marked "sweet oil" consist of cottonseed oil or a mixture of olive oil and cottonseed oil. A careful consideration of the subject leads to the conclusion that the only oil to which the term "sweet oil" may be correctly applied is olive oil.

It is held, therefore, that any oil other than olive oil is misbranded when sold under the name "sweet oil." It is not correct, for example, to label cottonseed oil as "sweet oil" and then elsewhere on the label to describe correctly the true character of the oil.

Food Inspection Decision 140.**LABELING OF VINEGARS.**

The Board of Food and Drug Inspection has given this question much consideration. A public hearing was given, a series of questions submitted to the various State food commissioners, interested manufacturers, wholesalers, retailers, and consumers, and a study of the various State laws and regulations was made, believing that these represent the general understanding of the terms by the people of those States. From the information thus obtained the Board has reached the conclusion that the definitions given in Circular No. 19, Office of the Secretary, are in accordance with the facts. These are as follows:

1. *Vinegar, cider vinegar, apple vinegar*, is the product made from the alcoholic and subsequent acetous fermentations of the expressed juice of apples.

2. *Wine vinegar, grape vinegar*, is the product made by the alcoholic and subsequent acetous fermentations of the juice of grapes.

3. *Malt vinegar* is the product made by the alcoholic and subsequent acetous fermentations, without distillation, of an infusion of barley malt or cereals whose starch has been converted by malt.

4. *Sugar vinegar* is the product made by the alcoholic and subsequent acetous fermentations of solutions of sugar, sirup, molasses, or refiner's sirup.

5. *Glucose vinegar* is the product made by the alcoholic and subsequent acetous fermentations of solutions of starch sugar or glucose.

6. *Spirit vinegar, distilled vinegar, grain vinegar*, is the product made by the acetous fermentation of dilute distilled alcohol.

Several questions regarding these definitions have been raised and after investigation the Board has reached the following conclusions:

Meaning of the term "vinegar."—While the term "vinegar" in its etymological significance suggests only sour wine, it has come to have a broader significance in English-speaking countries. In the United States it has lost entirely its original meaning and when used without a qualifying word designates only the product secured by the alcoholic and subsequent acetous fermentation of apple juice.

"Second pressings."—It is held that the number of pressings used in preparing the juice is immaterial so long as the pomace is fresh and not decomposed. The practice

of allowing the pomace from the presses to stand in piles or in vats for a number of days, during which time it becomes heated and decomposed, and then pressing, securing what is ordinarily called "second pressing," in the opinion of the Board produces a product which consists in whole or in part of a filthy and decomposed material and is therefore adulterated.

Vinegar from dried-apple products.—The product made from dried-apple skins, cores, and chops, by the process of soaking, with subsequent alcoholic and acetous fermentations of the solution thus obtained, is not entitled to be called vinegar without further designation, but must be plainly marked to show the material from which it is produced. The dried stock from which this product is prepared must be clean and made from sound material.

Addition of water.—When natural vinegars made from cider, wine, or the juice of other fruits are diluted with water, the label must plainly indicate this fact; as, for example, "diluted to — per cent acid strength." When water is added to pomace in the process of manufacture, the fact that the product is diluted must be plainly shown on the label in a similar manner. Dilution of vinegar naturally reduces, not only the acid strength, but the amount of other ingredients in proportion to the dilution, so that reduced vinegars will not comply with the analytical constants for undiluted products; but the relations existing between these various ingredients will remain the same. Diluted vinegars must have an acid strength of at least 4 grams acetic acid per 100 cubic centimeters.

Mixtures of vinegars.—As different kinds of vinegar differ in source, flavor, and chemical composition, mixtures thereof are compounds within the meaning of the Food and Drugs Act, and if they contain no added poisonous or other added deleterious ingredients, will not be held to be misbranded if plainly labeled with the word "compound," together with the names and proportions of the various ingredients.

Addition of boiled cider and coloring matter.—The Food and Drugs Act provides that a product shall be deemed to be adulterated if it be mixed, colored, powdered, coated, or stained in a manner whereby damage or inferiority is concealed; and, in the opinion of the Board, the addition of coloring matters, boiled cider, etc., to vinegar, wine vinegar, and the other types of vinegar, or mixtures thereof, is for the purpose of concealing damage or inferiority or producing an imitation product. In the first instance, the use of such products is an adulteration and therefore prohibited. Products artificially colored or flavored with harmless ingredients in imitation of some particular kind of vinegar will not be held to be misbranded if plainly labeled "Imitation vinegar" in accordance with the provisions of the law.

Mixture of distilled and sugar vinegars.—The product prepared by submitting to acetous fermentation a mixture of dilute alcohol (obtained, for example, from molasses by alcoholic fermentation and subsequent distillation) and dilute molasses, which has undergone alcoholic fermentation, is not "molasses vinegar" but a compound of distilled vinegar and molasses vinegar; such mixtures, however, must contain a substantial amount of molasses vinegar and not a small amount for the purpose of coloring the distilled vinegar. The molasses used must be fit for food purposes and free from any added deleterious substances.

Acetic acid diluted.—The product made by diluting acetic acid is not vinegar and when intended for food purposes must be free from harmful impurities and sold under its own name.

Product obtained by distilling wood.—The impure product made by the destructive distillation of wood, known as "pyroligneous acid," is not vinegar nor suitable for food purposes.

Acid strength.—All of the products described above should contain not less than four (4) grams of acetic acid per one hundred (100) cubic centimeters.

REPORT OF BUREAU OF PUBLICATIONS AND HEALTH INFORMATION.

GUY P. JONES, Acting Director.

This Bureau has been in receipt of many inquiries from teachers and school departments intending to add courses in public health instruction, sanitation and hygiene, to the regular curriculum upon the opening of the fall term. Not only have high schools applied for information regarding the installation of such work, but grammar and rural schools as well. There are many publications of the Board that are useful in this instruction, such as those bearing upon the extermination of flies, malaria, tuberculosis, smallpox and vaccination, etc. Copies of these bulletins and circulars are sent in quantity, free of all cost, to schools making such application.

In addition, this Bureau is prepared to make suggestions regarding references to texts needed for such work, and will gladly outline courses of instruction upon sanitation and disease prevention. Bibliographies of this sort are in print, and copies will be sent to all who make application for them.

Bacteriological instruction outfits are loaned to schools, application for which should be made to Dr. W. A. Sawyer, Director of the State Hygienic Laboratory, Berkeley, California. These outfits contain plates showing killed bacteria from the rim of a public drinking cup, from the tracks of an ordinary house fly, etc. Others show the effect of sunlight upon germs, the difference in number of bacteria found in dirty and clean milk, the few germs found in still air and the great numbers stirred up in a room during dry sweeping, etc. There are ten plates in the outfit and all will be found useful in demonstrating disease prevention. These outfits are loaned for temporary use only and must be promptly returned to the laboratory, in order that other schools may receive benefit likewise.

This Bureau also has a considerable supply of bulletins dealing with poliomyelitis, which are for free distribution to any citizen of the State. This disease is one concerning which there is little actual knowledge, but the bulletin contains articles designed to be of use to the average citizen who may desire information upon the subject.

LIST OF COUNTY HEALTH OFFICERS.

County.	Health officer.	Address.
Alameda	Dr. C. L. McKown	Niles
Alpine*	County Recorder Frank Smith	Markleeville
Amador	Dr. E. E. Endicott	Jackson
Butte	Dr. L. Q. Thompson	Gridley
Calaveras	Dr. Irwin B. March	Angels Camp
Colusa	Dr. C. A. Poage	Colusa
Contra Costa	Dr. W. S. George	Antioch
Del Norte	Dr. E. M. Fine	Crescent City
El Dorado	Dr. L. M. Lelsenring	Placerville
Fresno	Dr. W. T. Burks	Fresno
Glenn	Dr. J. A. Randolph	Willows
Humboldt	Dr. E. H. Bryant	Eureka
Imperial	Dr. Virgil McCoombs	El Centro
Inyo	Dr. I. J. Woodin	Independence
Kern	Dr. G. M. Bumgarner	Bakersfield
Kings	Dr. Ralph Motherol	Hanford
Lake	Dr. W. E. Upton	Kelseyville
Lassen	Dr. W. E. Dozier	Susanville
Los Angeles	Dr. E. O. Sawyer	Los Angeles
Madera	Dr. Mary R. Butin	Madera
Marin	Dr. J. H. Kuser	Novato
Mariposa	Dr. F. L. Wright	Mariposa
Mendocino	Dr. J. Liftchild	Ukiah
Merced	Dr. C. H. Castle	Merced
Modoc	Dr. John Stille	Alturas
Mono*	County Recorder Geo. Delury	Bridgeport
Monterey	Dr. Garth Parker	Salinas
Napa	Dr. E. Z. Hennessey	Napa
Nevada	Dr. Carl P. Jones	Grass Valley
Orange	Dr. John Wehrly	Santa Ana
Placer	Dr. O. L. Barton	Loomis
Plumas	Dr. F. D. Walsh	Quincy
Riverside	Dr. George E. Tucker	Riverside
Sacramento	Dr. Hugh Beattie	Elk Grove
San Benito	Dr. J. M. O'Donnell	Hollister
San Bernardino	Dr. Philip M. Savage	San Bernardino
San Diego	Dr. Nathan Hunt	San Diego
San Francisco	Dr. R. G. Brodrick	San Francisco
San Joaquin	Dr. R. B. Knight	Stockton
San Luis Obispo	Dr. H. M. Cox	San Luis Obispo
San Mateo	Dr. W. G. Beattie	Colma
Santa Barbara	Dr. J. C. Bainbridge	Santa Barbara
Santa Clara	Dr. William Simpson	San Jose
Santa Cruz	Dr. W. R. Congdon	Santa Cruz
Shasta	Dr. F. Stabel	Redding
Sierra	Dr. R. B. Davy	Downsville
Siskiyou	Dr. F. J. McNulty	Yreka
Solano	Dr. S. G. Bransford	Suisun
Sonoma	Dr. P. A. Meneray	Santa Rosa
Stanislaus	Dr. F. R. De Lappe	Modesto
Sutter	Dr. J. McFadven	Yuba City
Tehama	Dr. J. S. Cameron	Red Bluff
Trinity	Dr. D. B. Fields	Weaverville
Tulare	Dr. W. A. Preston	Visalia
Tuolumne	Dr. Wm. Lyman Hood	Sonora
Ventura	Dr. A. A. Maulhardt	Oxnard
Yolo	Dr. W. J. Blevins	Woodland
Yuba	Dr. J. H. Barr	Marysville

LIST OF CITY HEALTH OFFICERS.

City.	Health officer.	City.	Health officer.
Alameda	Dr. A. Hieronymus	Calexico	Dr. Wm. F. Smith
Albany	Dr. Robt. Hector	Chico	G. H. Taylor
Alhambra	Dr. F. E. Corey	Chino	Dr. John W. Callnon
Alturas	Dr. John Stille	Claremont	
Alviso		Cloverdale	F. P. Conner
Anaheim	Dr. J. L. Beebe	Coalinga	Dr. H. S. Warren
Antioch	Dr. W. S. George	Colfax	
Arcadia		Colton	Dr. L. A. J. La Motte
Arcata	Dr. G. W. McKinnon	Colusa	Dr. C. A. Poage
Arroyo Grande		Compton	J. W. Stone
Auburn	A. I. Waldo	Concord	Dr. F. F. Neff
Azusa	Dr. L. W. Atkinson	Coram	Geo. H. Thomas
Bakersfield	S. D. Mullins	Corning	Dr. W. F. Maggard
Belvedere	Dr. Florence Scott	Corona	Dr. W. H. Chapman
Benicia	Dr. W. L. McFarland	Coronado	Dr. Raffaele Lorini
Berkeley	Dr. J. J. Benton	Cottonwood	Dr. A. B. Gilliland
Biggs	Dr. B. Caldwell	Covina	
Bishop	Dr. J. W. Shute	Crescent City	
Blue Lake	Dr. G. N. Wood	Daly City	
Brawley	Dr. L. L. Lindsey	Davis	Dr. W. E. Bates
Burbank		Delano	Dr. H. Hildreth
Burlingame		Dinuba	Dr. Wm. Whittington
Callistoga		Dorris	Dr. A. A. Atkinson

LIST OF CITY HEALTH OFFICERS—Continued.

City.	Health officer.	City.	Health officer.
Dixon.....	W. C. Rhem	Paso Robles.....	B. B. Pierce
Dunsmuir.....	Dr. W. B. Mason	Perris.....	A. F. Hardy
Eagle Rock.....	Dr. C. H. Phinney	Petaluma.....	Dr. J. M. Proctor
Elsinore.....	Dr. George D. Keeler	Pinole.....	J. Chattleton
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Escondido.....	Dr. David Crise	Placerville.....	P. J. Hall
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Fort Jones.....	Thos. Bransom	Randsburg.....	E. B. McGinnes
Fortuna.....	Dr. Geo. S. Loveren	Red Bluff.....	Dr. F. J. Bailey
Fowler.....	Dr. W. T. Crawford	Redding.....	L. D. Poole
Fresno.....	Dr. Geo. H. Aiken	Redlands.....	Dr. Chas. E. Ide
Fullerton.....	Dr. F. J. Gobar	Redondo Beach.....	Dr. D. R. Hancock
Gilroy.....	Dr. John A. Clark	Redwood City.....	Dr. J. L. Ross
Glendale.....	Dr. R. E. Chase	Richmond.....	Dr. Chas. R. Blake
Grass Valley.....	Paul E. Sears	Rio Vista.....	Dr. A. J. McKinnon
Gridley.....	Dr. L. L. Thompson	Riverside.....	Dr. Thos. R. Griffith
Hanford.....	Dr. R. W. Musgrave	Rocklin.....	H. D. Flesche
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Hermosa Beach.....	G. A. Cleaveland	Saint Helena.....	S. H. Pettit
Hercules.....	Dr. M. L. Fernandez	Salinas.....	S. A. McCollum
Hillsborough.....		San Anselmo.....	Dr. Chipman
Hollister.....	Dr. R. G. Curtis	San Bernardino.....	Dr. C. V. McConnico
Hollywood.....	E. O. Palmer	San Diego.....	Dr. F. H. Mead
Huntington Beach.....	Dr. G. A. Shank	San Francisco.....	Dr. R. G. Brodrick
Huntington Park.....	Dr. W. Thompson	Sanger.....	Dr. T. F. Madden
Imperial.....	Dr. C. E. Standlee	San Jose.....	Dr. M. F. Hopkins
Inglewood.....	Dr. H. A. Putnam	San Jacinto.....	Thos. Lloyd
Jackson.....	F. V. Sanguinetti	San Juan.....	W. R. Moore
Kennett.....	Dr. J. P. Sandholdt	San Luis Obispo.....	Dr. P. L. Rookledge
Kernville.....		San Rafael.....	Dr. W. F. Jones
King City.....		San Mateo.....	Dr. S. G. Goodspeed
Kingsburg.....		San Leandro.....	P. C. Du Bois
Lakeport.....	Jabez Banks	Santa Ana.....	Dr. J. I. Clark
Larkspur.....		Santa Barbara.....	Dr. D. A. Conrad
Lincoln.....	F. R. Elder	Santa Cruz.....	Dr. H. E. Piper
Lindsay.....	Dr. W. W. Tourtillot	Santa Clara.....	Dr. J. F. Beattie
Livermore.....	Dr. H. G. McGill	Santa Monica.....	Dr. W. H. Parker
Lodi.....	Dr. F. W. Colman	Santa Paula.....	Dr. B. E. Murrill
Long Beach.....	Dr. W. H. Newman	Santa Rosa.....	Dr. Jackson Temple
Lompoc.....		Santa Maria.....	Dr. O. P. Paulding
Lordsburg.....	Dr. J. E. Hubble	Sausalito.....	Dr. A. H. Mays
Los Angeles.....	Dr. L. M. Powers	Sawtelle.....	Dr. A. B. Hromadka
Los Banos.....	Dr. J. L. McClelland	Selma.....	Dr. F. H. Williams
Los Gatos.....	Dr. C. K. Small	Sierra Madre.....	Dr. R. H. Mackerras
Loyalton.....	Dr. G. L. Coates	Sebastopol.....	Dr. J. J. Keating
Madera.....		Sisson.....	
Maricopa.....	Dr. H. N. Taylor	South Pasadena.....	Dr. C. A. Whiting
Martinez.....	Dr. E. E. Brown	South San Francisco.....	Dr. H. G. Plymire
Marysville.....	Wm. Meek	Stockton.....	Dr. R. T. McGurk
Mayfield.....	Dr. F. M. Seibert	Susanville.....	Dr. E. S. Drucks
McCloud.....	Dr. R. T. Legge	Suisun.....	
McKittrick.....	G. M. Chitwood	Stanton.....	
Merced.....	Dr. C. H. Castle	Sonoma.....	
Mill Valley.....	Capt. M. Staples	Taft.....	E. G. Wood
Modesto.....	Dr. J. J. Knowlton	Tehachapi.....	L. M. Denison
Montague.....		Tracy.....	Dr. J. G. Murrell
Mojave.....	A. Smith	Tehama.....	
Monrovia.....	Dr. C. D. Gaylord	Tropico.....	
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Orland.....	Dr. S. Goldman	Willows.....	Thos. Kinkade
Oroville.....	Dr. W. F. Gates	Winters.....	Dr. J. H. Halle
Oxnard.....	Dr. Ralph W. Avery	Woodland.....	Peter Scott
Pacific Grove.....	Dr. W. V. Grimes	Yreka.....	W. D. Doggett
Palo Alto.....	Hubert O. Jenkins	Yuba City.....	
Pasadena.....	Dr. Stanley P. Black		

The California State Board of Health Bulletin will be sent free to any citizen of the State on request.

1912 VACATION NUMBERS. II.

CALIFORNIA STATE BOARD OF HEALTH

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MONTHLY BULLETIN

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JULY, 1912

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THE CALIFORNIA STATE BOARD OF HEALTH

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Division Bacteriologist and Field Officer-----Patterson Block, Fresno, California

STANLEY P. BLACK, M.D.

Division Bacteriologist and Field Officer-----Auditorium Building, Los Angeles

REGULAR MEETINGS

The meetings of the California State Board of Health are held regularly the first Saturday of each month, but the quarterly meetings required by law to be held at the Capitol of the State are ordinarily designated as January, April, July, and October.

By courtesy of the University of California the Food and Drug Laboratory and the Hygienic Laboratory are located in University buildings at Berkeley, California.

Address all general communications to the

SECRETARY, Sacramento, California.

JULY BULLETIN.

REPORT OF BUREAU OF ADMINISTRATION FOR JUNE, 1912.

JOHN F. LEINEN, Director.

Executive Division.

The reports of the divisions of this bureau for the month of June constitute a summary of activities essentially similar to those outlined in the May bulletin. With the opening of the summer vacation season the correspondence and administrative work relative to summer resorts and mountain industrial camps has greatly increased.

Summary of Office Work.

Items.	Total.	No. of Subjects.	Adminis- tration.	Mor- bidity.	Infor- mation Bureau.	Miscel- laneous.
Letters received -----	2,250	174	800	480	460	510
Letters sent -----	2,325	172	710	495	768	352
Circular letters sent -----	312	1	-----	312	-----	-----
Report blanks sent -----	1,775	8	146	1,479	150	-----
Reports received -----	1,240	15	140	852	248	-----
Press clippings, bulletins and newspapers received -----	2,100	29	240	1,066	794	-----
Accounts audited -----	146	-----	21	-----	125	-----
Estimates approved, items -----	152	-----	22	-----	130	-----
Checks issued -----	65	-----	36	-----	29	-----
Miscellaneous letters, advising local health officers and com- munities -----	115	2	40	70	5	-----

Morbidity Report for June, 1912.

Disease.	Cases.	Places.
Smallpox -----	111	18
Scarlet fever -----	49	25
Diphtheria -----	91	15
Mumps -----	53	8
Pneumonia -----	27	7
Measles -----	181	24
Tuberculosis -----	214	17
Typhoid -----	83	15
Poliomyelitis -----	27	7
Whooping-cough -----	75	18
Chicken pox -----	101	6
Malaria -----	4	2
Influenza -----	1	1
Syphilis -----	5	3
Gonorrhœa -----	6	4
Erysipelas -----	12	3
Cerebro-spinal meningitis -----	1	1
Glanders -----	1	1
Trachoma -----	1	1
Impetigo -----	1	1
Rocky Mountain spotted fever -----	1	1
Hookworm -----	18	1
Rabies -----	1	1
Totals -----	1,064	181

REPORT OF THE BUREAU OF VITAL STATISTICS FOR JUNE.

GEORGE D. LESLIE, Director.

In addition to the routine work of the divisions of this bureau some new work was done for the tuberculosis commission report and a general advance made upon the special tabulations required for the biennial report. The results of this work will appear in special publications at a later date.

June and July Statistical Summaries.

Owing to the fact that vital statistic records are held by local officials until the fifth of each month and require three weeks to a month of tabulation work after being received by this bureau, the statistics of any given month can not be published until the issue of the second succeeding month, *i e.*, the June statistics will be found in the August bulletin and the July statistics will be found in the September number.

Statistical Tables for May, 1912.

State Totals and Annual Rates.—The following table shows for California as a whole the birth, death, and marriage totals for the current and preceding months in comparison with those for the corresponding months of a year ago, as well as the annual rates per 1,000 population represented by the totals for the current and preceding months. The rates are based on an estimated midyear population of 2,579,874 for California in 1912, the estimate having been made by the Census Bureau method with slight modifications.

Birth, Death, and Marriage Totals, with Annual Rates per 1,000 Population for Current and Preceding Months, for California: May.

Month.	MONTHLY TOTAL.		Annual rate per 1,000 population: 1912.
	1912.	1911.	
May—			
Births	3,181	2,894	14.3
Deaths	3,028	2,888	13.8
Marriages	2,323	2,087	10.6
April—			
Births	3,180	2,799	15.0
Deaths	3,038	2,666	14.4
Marriages	2,365	1,997	11.2

The birth, death, and marriage totals for May, as for preceding months, were much greater in 1912 than in 1911, the increase in birth registration being specially notable.

County Totals.—The first table which follows below shows the monthly birth, death, and marriage totals for the principal counties of the State, the list being limited to counties having a population of at least 25,000 according to the Federal Census of 1910. Totals are also shown for San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), as well as for Los Angeles and Orange counties together.

City Totals.—The second of the following tables gives the birth and death totals for the principal freeholders' charter cities, the list including all chartered cities with a census population of at least 15,000 in 1910. The totals are given likewise for San Francisco in comparison

with Oakland, Alameda, and Berkeley, the three cities adjoining one another on the east shore of San Francisco Bay, as well as for Los Angeles in comparison with neighboring chartered cities (Long Beach, Pasadena, Pomona, and Santa Monica).

Birth, Death, and Marriage Totals, for Principal Counties: May.

County.	May, 1912.		
	Births.	Deaths.	Marriages.
California	3,181	3,028	2,323
Counties of more than 25,000 population (1910):			
Alameda	327	310	191
Butte	49	39	32
Contra Costa	36	31	19
Fresno	107	80	62
Humboldt	62	32	37
Kern	47	50	34
Los Angeles	851	711	565
Marin	13	11	133
Orange	72	45	98
Riverside	63	43	60
Sacramento	84	97	90
San Bernardino	68	83	53
San Diego	85	113	88
San Francisco	550	535	368
San Joaquin	47	104	50
San Mateo	27	23	28
Santa Barbara	33	32	20
Santa Clara	116	130	64
Santa Cruz	23	24	25
Solano	36	24	11
Sonoma	54	77	30
Tulare	45	37	28
Selected groups:			
San Francisco	953	910	739
Los Angeles	923	756	663

Birth and Death Totals, for Principal Cities: May.

City.	May, 1912.	
	Births.	Deaths.
Freeholders' charter cities	2,024	1,788
Cities of more than 15,000 population (1910):		
Alameda	27	25
Berkeley	56	32
Fresno	50	24
Long Beach	23	20
Los Angeles	619	451
Oakland	220	187
Pasadena	43	38
Riverside	31	18
Sacramento	64	87
San Diego	64	86
San Francisco	550	535
San Jose	49	45
Stockton	21	52
Selected groups:		
San Francisco	550	535
Oakland, Alameda and Berkeley	303	244
Total, Bay cities	853	779
Los Angeles	619	451
Neighboring cities	97	78
Totals	716	529

Causes of Death.—The following table shows the classification of deaths in California for the current month, in comparison with the preceding month:

Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths for Current and Preceding Months, for California: May.

Cause of death.	Deaths: May.	Proportion per 1,000.	
		May.	April.
ALL CAUSES	3,028	1,000.0	1,000.0
Typhoid fever	30	9.9	8.2
Malarial fever	8	2.6	1.3
Smallpox			0.3
Measles	17	5.6	6.9
Scarlet fever	3	1.0	1.0
Whooping-cough	15	5.0	5.9
Diphtheria and croup	10	3.3	4.9
Influenza	9	3.0	5.6
Other epidemic diseases	14	4.6	4.0
Tuberculosis of lungs	427	141.0	126.1
Tuberculosis of other organs	76	25.1	25.0
Cancer	212	70.0	62.5
Other general organs	141	46.6	51.7
Meningitis	22	7.3	12.8
Other diseases of nervous system	254	83.9	76.7
Diseases of circulatory system	529	174.7	174.8
Pneumonia and broncho-pneumonia	188	62.1	85.3
Other diseases of respiratory system	57	18.8	24.4
Diarrhea and enteritis, under 2 years	63	20.8	12.5
Diarrhea and enteritis, 2 years and over	27	8.9	7.2
Other diseases of digestive system	155	51.2	54.6
Bright's disease and nephritis	196	64.7	61.6
Childbirth	25	8.3	10.9
Diseases of early infancy	105	34.7	39.8
Suicide	77	25.4	24.4
Other violence	226	74.6	72.1
All other causes	142	46.9	39.5

In May there were 529 deaths, or 17.5 per cent of all, from diseases of the circulatory system, and 503, or 16.6 per cent, from various forms of tuberculosis. Heart disease thus led tuberculosis somewhat.

Other notable causes of death were: Violence, 303; diseases of the nervous system, 276; diseases of the digestive and respiratory systems, each 245; cancer, 212; Bright's disease and nephritis, 196, and epidemic diseases, 106.

The deaths from epidemic diseases were as follows: Typhoid fever, 30; measles, 17; whooping-cough, 15; diphtheria and croup, 10; and all other epidemic diseases, 34.

The deaths from the three leading epidemic diseases reported for the month were distributed by counties as follows:

Typhoid fever.		Measles.		Whooping-cough.	
Alameda	2	Alameda	2	Alameda	8
Fresno	1	Butte	1	Fresno	1
Humboldt	1	Contra Costa	1	Los Angeles	5
Imperial	2	El Dorado	1	San Diego	1
Kern	3	Fresno	1	San Francisco	2
Kings	1	Sacramento	1	Santa Clara	1
Los Angeles	6	San Diego	2	Stanislaus	1
Napa	1	San Francisco	2	Yuba	1
Orange	1	San Joaquin	1		
San Bernardino	2	San Luis Obispo	1	Total	15
San Diego	2	Santa Clara	3		
San Francisco	2	Sonoma	1		
San Joaquin	1	Total	17		
San Luis Obispo	1				
Santa Clara	1				
Siskiyou	1				
Sonoma	1				
Stanislaus	1				
Total	30				

Geographic Divisions.—The following table presents data for geographic divisions, including the metropolitan area, or San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), in comparison with the rural counties of Northern and Central California:

Deaths from Main Classes of Diseases, for Geographic Divisions: May.

Geographic division.	DEATHS. MAY.										
	All causes.	Epidemic diseases.	Tuberculosis (all forms).	Cancer.	Diseases of respiratory system.	Dysentery of alimentary system.	Diseases of respiratory system.	Diseases of digestive system.	Breast's disease and nephritis.	Violence.	All other causes.
THE STATE	3,028	106	503	212	276	529	245	245	196	303	413
Northern California	323	22	42	16	25	65	21	28	18	44	42
Coast counties	185	10	28	10	18	40	13	17	10	18	21
Interior counties	138	12	14	6	7	25	8	11	8	26	21
Central California	1,638	51	246	116	150	323	138	139	110	156	209
San Francisco	535	10	74	35	49	125	42	45	39	51	65
Other bay counties	373	14	56	33	36	76	35	31	20	27	47
Coast counties	212	8	27	19	20	38	18	13	14	26	29
Interior counties	516	19	89	29	45	84	43	50	37	52	68
Southern California	1,087	33	215	80	101	141	86	78	68	103	162
Los Angeles	711	20	144	60	63	96	59	53	46	56	114
Other counties	356	13	71	20	38	45	27	25	22	47	48
Northern and Central California	1,961	73	288	132	175	388	159	167	128	200	251
Metropolitan area	910	24	130	68	85	201	77	76	59	78	112
Rural counties	1,051	49	158	64	90	187	82	91	69	122	139

Sex and Age Periods.—The proportion of the sexes among the 3,028 decedents in May was: Male, 1,898, or 62.7 per cent; and female, 1,130, or 37.3 per cent.

The following table shows the age distribution, by numbers and per cents, of deaths classified by sex:

Deaths Classified by Sex and Age Periods, with Per Cents by Age Periods, for California: May.

Age period.	Deaths.			Per cent.		
	Total.	Male.	Female.	Total.	Male.	Female.
ALL AGES -----	3,028	1,898	1,130	100.0	100.0	100.0
Under 1 year -----	309	171	138	10.2	9.0	12.2
1 to 4 years -----	117	61	56	3.8	3.2	4.9
5 to 14 years -----	87	51	36	2.9	2.7	3.2
15 to 24 years -----	205	117	88	6.8	6.2	7.8
25 to 34 years -----	318	236	82	10.5	12.4	7.3
35 to 44 years -----	329	214	115	10.9	11.3	10.2
45 to 54 years -----	381	271	110	12.6	14.3	9.7
55 to 64 years -----	374	232	142	12.3	12.2	12.6
65 years and over -----	908	545	363	30.0	28.7	32.1

This table shows that relatively more females than males died at under 1 year, 1 to 4 years, 5 to 14 years, 15 to 24 years, 55 to 64 years, and at 65 years and over. In the age periods from 25 to 54 years, however, there were relatively more deaths among men than among women, generally speaking. That is, death comes to men mainly during years of active mature life, but takes females especially in infancy, childhood, and youth, as well as toward the period of old age.

Occupations.—The table below gives, for deaths 15 years and over, the number of men and women for whom some occupation was reported in contrast with those for whom no gainful occupation was shown:

Deaths 15 Years and Over Classified by Sex and Occupation, with Per Cents by Sex, for California: May.

	Deaths.			Per cent male.	Per cent female.
	Total.	Male.	Female.		
15 years and over -----	2,515	1,615	900	64.2	35.8
Occupations reported -----	1,508	1,415	93	93.8	6.2
No gainful occupation -----	1,007	200	807	19.9	80.1

Of the 1,508 decedents for whom occupations were reported the males numbered 1,415, or 93.8 per cent, and the females only 93, or 6.2 per cent.

The following table shows the distribution of male decedents 15 years and over, engaged in the main kinds of occupation :

Deaths of Males 15 Years and Over Engaged in Gainful Occupations, Classified by Kind of Occupation, with Per Cents, for California: May.

Kind of occupation.	Males 15 years and over.	
	Deaths.	Per cent.
ALL OCCUPATIONS -----	1,415	100.0
Professional -----	79	5.6
Clerical and official -----	107	7.6
Mercantile and trading -----	117	8.3
Public entertainment -----	27	1.9
Personal service, police and military -----	33	2.3
Laboring and servant -----	323	22.8
Manufacturing and mechanical industry -----	272	19.2
Agriculture, transportation and other outdoor -----	446	31.5
All other occupations -----	11	0.8

Of the 1,415 male decedents for whom occupations were reported 446, or 31.5 per cent, were engaged in agriculture, transportation and other outdoor pursuits; 272, or 19.2 per cent, in manufacturing and mechanical industry; 323, or 22.8 per cent, in laboring and servant work; and altogether 374, or 26.5 per cent, in professional, clerical and official, mercantile and trading, and all other occupations.

REPORT OF THE BUREAU OF THE HYGIENIC LABORATORY FOR JUNE.

WILBUR A. SAWYER, M.D., Director.

Lectures on Public Health.

During the month of June two illustrated lectures were arranged for by the Director of the Laboratory and were given at the University of California before the summer session and the public. On June 25th, Dr. T. C. McCleave, president of the California Association of Medical Milk Commissions, spoke on "Milk in Relation to Public Health," and on June 27th, Dr. Creighton Wellman, Professor of Tropical Medicine, Hygiene, and Preventive Medicine in Tulane University, lectured on "The Spread of Disease by Insects." The audiences were large and attentive. These talks began a series of eleven lectures intended to give the public a clearer vision in public health matters.

An Addition to the Staff.

It is with pleasure that the appointment of Dr. J. C. Geiger by the State Board of Health to the position of Chief Bacteriologist in the State Hygienic Laboratory is announced. Dr. Geiger comes from Tulane University, New Orleans, where he has been studying preventive medicine under Dr. Creighton Wellman.

Division of Biological Examinations.

Summary of Examinations Made in the California State Hygienic Laboratory During the Month of June, 1912.

Condition suspected.	Positive.	Negative.	Inconclusive.	Total.
Main Laboratory at Berkeley:				
Anthrax		1		1
Diphtheria	35	19		54
Gonococcus infection	6	3		9
Hookworm		1		1
Malaria	1	7		8
Plague		1		1
Rabies	12	5	3	20
Tuberculosis	7	19		26
Typhoid	5	22		27
Water pollution	1	6		7
Miscellaneous	1	2		3
				157
Northern Branch at Sacramento:				
Diphtheria		1		1
Malaria		1		1
Tuberculosis	1	2		3
Typhoid	2	3	1	6
				11
San Joaquin Valley Branch at Fresno:				
Diphtheria	1	3	2	6
Malaria		1		1
Tuberculosis		5		5
Typhoid		3		3
				15
Southern Branch at Los Angeles:				
Diphtheria	6	5	1	12
Typhoid	3	2	2	7
				19
Total number of examinations				202

Division of Preventive Therapeutics.

Pasteur Treatment for the Prevention of Rabies by the State Hygienic Laboratory During the Month of June, 1912.

	Treatment commenced.	Treatment completed.
Main Laboratory at Berkeley	3	8
Northern Branch at Sacramento	2	1
San Joaquin Valley Branch at Fresno	0	0
Southern Branch at Los Angeles	0	0
Laboratory of Sacramento Board of Health, by deputized bacteriologist	1	0
Laboratory of San Francisco Board of Health, by deputized bacteriologist	12	23
Laboratory of Los Angeles Board of Health, by deputized bacteriologist	0	0
Laboratory of Letterman General Hospital, Presidio, by deputized bacteriologist	0	2
	18	34

Bureau of the Hygienic Laboratory.*Participation in Instruction in Public Health During June, 1912.***Main Laboratory at Berkeley:**

Bacteriological instruction outfits sent out.....	2
Bacteriological instruction outfits in use.....	23
Exhibits loaned from Hygienic Museum, sent out.....	0
Exhibits loaned from Hygienic Museum, in use.....	2
Number of models or other pieces of apparatus in above exhibits.....	9
Lectures or talks by the Director.....	3

Division of Epidemiological Investigations.*Epidemiological Investigations During June, 1912.***Main Laboratory at Berkeley:**

Special Investigations by the Director.....	2
Investigation of a third case of human rabies in San Francisco.	
Investigation of a suspected case of plague in a rat in San Francisco.	

REPORT OF BUREAU OF FOODS AND DRUGS FOR JUNE, 1912.

MYER E. JAFFA, Director.

Owing to the demand for the text of new Food Inspection Decisions, the space available in this issue is devoted to Decisions Nos. 141, 142, 143, 144, 145, 146.

The Food Inspection Decisions printed herewith have been published since the last Monthly Bulletin of the State Board of Health has been issued. Special attention is called to F. I. D. 144, concerning canned foods. Notice is also directed to Decision 145 with reference to the bleaching of oats and barley. In other words, the material should be truthfully labeled when put on the market. For germinating properties any grains "processed" or "purified" should not be used, as stated in the decision: the germinating properties may be seriously impaired.

Food Inspection Decision 141.**THE LABELING OF MARASCHINO AND MARASCHINO CHERRIES.**

The question of the proper labeling of the products designated as "Maraschino Cherries," "Cherries in Maraschino," "Bigarreau au Marasquin," etc., has been presented to the Board for consideration; and after due investigation and examination of the evidence secured, the Board is of the opinion that the term "Maraschino Cherries" should be applied only to the marasca cherries preserved in maraschino.

Maraschino is a liqueur or cordial prepared by process of fermentation and distillation from the marasca cherry, a small variety of the European wild cherry indigenous to the Dalmatian Mountains. Liqueurs or cordials prepared in imitation of maraschino with artificial flavors or otherwise will not be held to be misbranded if plainly labeled "Imitation" in some manner to show their true character.

In considering the products prepared from the large light-colored cherry of the Napoleon Bigarreau, or Royal Anne type, which are artificially colored and flavored and put up in a sugar sirup, flavored with various materials, the Board has reached the conclusion that this product is not properly entitled to be called "Maraschino Cherries," or "Cherries in Maraschino." If, however, these cherries are packed in a sirup, flavored with maraschino alone, it is the opinion of the Board that they would not be misbranded, if labeled "Cherries, Maraschino Flavor," or "Maraschino Flavored Cherries." If these cherries are packed in maraschino liqueur there would be no objection to the phrase "Cherries in Maraschino." When these artificially colored cherries are put up in a sirup flavored in imitation of maraschino, even though the flavoring may consist in part of maraschino, it would not be proper to use the word "Maraschino" in connection with the product unless preceded by the word "Imitation." They may, however, be labeled to show that they are a preserved cherry, artificially colored and flavored.

The presence of artificial coloring or flavoring matter, of any substitute for cane sugar, and the presence and amount of benzoate of soda, when used in these products must be plainly stated upon the label in the manner provided in Food Inspection Decisions Nos. 72 and 104.

The same principle applies to the labeling of cherries put up in sirup flavored with essence of maraschino or other flavors.

Food Inspection Decision 142.

SACCHARIN IN FOOD.

The following decision which relates to the use of saccharin in food will not go into effect until the 1st of April, 1912, the month of March being given to interested parties so as to arrange their business and take such steps as they deem proper.

JAMES WILSON,

Secretary of Agriculture.

Washington, D. C., March 1, 1912.

After full consideration of the representations made in behalf of the manufacturers of saccharin at the hearing before us and of the briefs filed by their attorneys, as well as the briefs filed, at our request, by officers of the Department of Agriculture, we conclude that the use of saccharin in normal foods, within the jurisdiction of the Food and Drugs Act, is a violation of law and will be prosecuted.

It is true that the Referee Board did not find that the use in foods of saccharin in small quantities (up to 0.3 gram daily) is injurious to health. However, the Referee Board did find that saccharin used in quantities over 0.3 gram per day for a considerable period is liable to disturb digestion, and the Food and Drugs Act provides that articles of food are adulterated which contain any added poisonous or other added deleterious ingredient which may render them injurious to health.

The Bureau of Chemistry of the Department of Agriculture reports that saccharin has been found in more than fifty kinds of foods in common use. It is argued, therefore, that if the use of saccharin in foods be allowed, the consumer may very easily ingest, day by day, over 0.3 gram, the quantity which, according to the findings of the Referee Board, is liable to produce disturbances of digestion. On the other hand, it is claimed by the manufacturers that the sweetening power of saccharin is so great that, in a normal dietary, the amount of saccharin ingested daily would not exceed 0.3 gram, the amount found to be harmless by the Referee Board.

However this may be, it is plain, from the finding of the Referee Board, that the substitution of saccharin for sugar lowers the quality of the food. The only use of saccharin in foods is as a sweetener, and when it is so used, it inevitably displaces the sugar of an equivalent sweetening power. Sugar has a food value and saccharin has none. It appears, therefore, that normal foods sweetened with saccharin are adulterated under the law.

In making this decision we are not unmindful of the fact that persons suffering from certain diseases may be directed by their physicians to abstain from the use of sugar. In cases of this kind, saccharin is often prescribed as a substitute sweetening agent. This decision will not in any manner interfere with such a use of saccharin. The Food and Drugs Act provides that any substance which is intended to be used for the prevention, cure, or mitigation of disease is a drug, and a product containing saccharin and plainly labeled to show that the mixture is intended for the use of those persons who, on account of disease, must abstain from the use of sugar, falls within the class of drugs and is not affected by this decision.

The Secretary of the Treasury dissents.

Food Inspection Decision 143.

THE LABELING OF CANDIED CITRON.

The Board of Food and Drug Inspection has given consideration to the question of what is the correct use of the term "Candied citron," when applied to the preserved peel of fruits.

The evidence gathered by the board shows distinctly that the term "Candied citron" is generally recognized in the trade, and by the consumer, to be applicable only to the candied peel of fruit of the citron tree, *Citrus medica* L., variety *genuina* Kuhl., a citrus fruit similar to the lemon, but larger and possessing a thick rind of characteristic flavor.

The rind of the citrus melon, *Citrus vulgaris* Schrad., is often used in a similar manner to true candied citron. The board is of the opinion that the candied rind of this variety of watermelon, when sold in interstate commerce, must not be desig-

nated as "Candied citron." It should be labeled "Candied citron melon," "Candied watermelon," or some similar designation.

It is also considered that such terms as "American citron," "Candied domestic citron," or the like, are not correct designations for the candied citron melon and when used will be deemed misbranding, except when applied to the American product of the citrus fruit "citron," described above.

Food Inspection Decision 144.

CANNED FOODS: USE OF WATER, BRINE, SIRUP, SAUCE, AND SIMILAR SUBSTANCES IN THE PREPARATION THEREOF.

The can in canned food products serves not only as a container but also as an index of the quantity of food therein. It should be as full of food as is practicable for packing and processing without injuring the quality or appearance of the contents. Some food products may be canned without the addition of any other substances whatsoever—for example, tomatoes. The addition of water in such instances is deemed adulteration. Other foods may require the addition of water, brine, sugar, or sirup, either to combine with the food for its proper preparation or for the purpose of sterilization—for instance, peas. In this case the can should be packed as full as practicable with the peas and should contain only sufficient liquor to fill the interstices and cover the product.

Canned foods, therefore, will be deemed to be adulterated if they are found to contain water, brine, sirup, sauce, or similar substances in excess of the amount necessary for their proper preparation and sterilization.

It has come to the notice of the department that pulp prepared from trimmings, cores, and other waste material is sometimes added to canned tomatoes. It is the opinion of the board that pulp is not a normal ingredient of canned tomatoes, and such addition is therefore adulteration. It is the further opinion of the board that the addition of tomato juice in excess of the amount present in the tomatoes used is adulteration—that is, if in the canning of a lot of tomatoes more juice be added than is present in that lot, the same will be considered an adulteration.

Food Inspection Decision 145.

BLEACHED OATS AND BARLEY.

The Department of Agriculture has received numerous inquiries relative to the application of the Food and Drugs Act to oats, barley, and other grains bleached with the fumes of sulphur. It appears that by this process grains which are damaged or of inferior quality may be made to resemble those of higher grade or quality, and their weight increased by addition of water. Such products, therefore, are adulterated within the meaning of the Food and Drugs Act of June 30, 1906, and can not be either manufactured or sold in the District of Columbia, or in the Territories, or transported or sold in interstate commerce.

It is represented, however, that grains which are weather-stained, or soil-stained, the quality of which is in no wise injured in other respects, are sometimes bleached with sulphur fumes. Pending the report of the Referee Board of Consulting Scientific Experts as to the effect upon health of sulphur dioxid, and the results of experiments being made by this Department as to the effect of sulphur-bleached grains on animals, no objection will be made to traffic in sound and wholesome grains which have been bleached with sulphur dioxid and from which the excess water has been removed, provided that each and every package is plainly labeled to show that the contents have been treated with sulphur dioxid. Bulk shipments should be properly designated on invoices. The terms "purified," "purified with sulphur," "processed," etc., are misleading and not proper designations for these products.

Attention is also called to the fact that grains bleached with sulphur fumes may have their germinating properties very seriously impaired.

NOTICES OF JUDGMENTS.

Notices of Judgments, numbers 1192 to 1241, inclusive, are listed below. Any person wishing copies of any of these notices may obtain the same by addressing the Director of the State Laboratory, University of California, Berkeley, California.

No. 1192—Alleged Adulteration of Oysters.

No. 1193—Adulteration and Misbranding of Vinegar.

No. 1194—Alleged Misbranding of Peroxide Cream.

No. 1195—Adulteration of Catsup.

No. 1196—Adulteration of Catsup.

- No. 1197—Misbranding of Williams' Russian Cough Drops.
- No. 1198—Adulteration of Corn Meal.
- No. 1199—Adulteration of Tomato Catsup.
- No. 1200—Adulteration and Misbranding of Cider Vinegar.
- No. 1201—Adulteration of Tomato Catsup.
- No. 1202—Adulteration of Shelled Eggs.
- No. 1203—Adulteration of Phosphate.
- No. 1204—Misbranding of Cloves.
- No. 1205—Adulteration and Misbranding of Blackberry Cordial.
- No. 1206—Adulteration and Misbranding of Vinegar.
- No. 1207—Misbranding of Fruit Jelly.
- No. 1208—Adulteration and Misbranding of Oats.
- No. 1209—Adulteration of Milk.
- No. 1210—Adulteration of Cream.
- No. 121—Misbranding of Cream.
- No. 1212—Misbranding of Raspberry Extract and Strawberry Extract.
- No. 1213—Adulteration of Tomato Catsup.
- No. 1214—Adulteration of Cream.
- No. 1215—Misbranding of "Vino Vito."
- No. 1216—Adulteration and Misbranding of Vanilla Flavor.
- No. 1217—Adulteration and Misbranding of Strawberry Extract, Raspberry Extract, Orange Extract, Vanilla and Tonka Extract, Almond Extract, and Cinnamon Extract.
- No. 1218—Misbranding of Hoxsie's Croup Remedy.
- No. 1219—Misbranding of "Cocacalisaya."
- No. 1220—Adulteration and Misbranding of Lemon Oil.
- No. 1221—Misbranding of Morse's Cream.
- No. 1222—Misbranding of Ferro-China Antimalarico.
- No. 1223—Misbranding of Cottonseed Meal.
- No. 1224—Adulteration of Tomato Catsup.
- No. 1225—Misbranding of Apple Vinegar.
- No. 1226—Adulteration and Misbranding of Champagne.
- No. 1227—Adulteration of Tomato Paste.
- No. 1228—Misbranding of Hair Balsam.
- No. 1229—Adulteration and Misbranding of Lemon Extract.
- No. 1230—Adulteration and Misbranding of Essence of Peppermint.
- No. 1231—Adulteration of Tomato Paste.
- No. 1232—Misbranding of Laxative Boro Pepsin.
- No. 1233—Misbranding of Coffee.
- No. 1234—Misbranding of Dr. Kennedy's Worm Syrup, Cherry Balsam, and Her-
culine Tonic.
- No. 1235—Adulteration of Cherry Jam, Raspberry Jelly, Tomato Catsup and Straw-
berry Jam.
- No. 1236—Adulteration of Milk.
- No. 1237—Adulteration of Canned Tomatoes.
- No. 1238—Adulteration and Misbranding of Extract of Peppermint.
- No. 1239—Alleged Misbranding of Mustard.
- No. 1240—Misbranding of Syrup.
- No. 1241—Adulteration and Misbranding of Cider Vinegar and Catsup.

REPORT OF BUREAU OF PUBLICATIONS AND HEALTH IN- FORMATION FOR JUNE, 1912.

GUY P. JONES, Acting Director

The special interest of the people during the month of June, as indicated by inquiries received, has centered in the malaria control problem and in the sewage disposal problem. The demand for literature on septic tanks has been unusually heavy.

The house fly is evidently becoming more and more a source of annoyance to the people and active work against this unnecessary source of possible spread of disease has been begun in many places. The bureau has exhausted its supply of literature on this subject, but can give references to accessible literature.

LIST OF COUNTY HEALTH OFFICERS.

County.	Health officer.	Address.
Alameda	Dr. C. L. McKown	Niles
Alpine*	County Recorder Frank Smith	Markleeville
Amador	Dr. E. E. Endicott	Jackson
Butte	Dr. L. Q. Thompson	Gridley
Calaveras	Dr. Irwin B. March	San Andreas
Colusa	Dr. C. A. Poage	Colusa
Contra Costa	Dr. W. S. George	Antioch
Del Norte	Dr. E. M. Fine	Crescent City
El Dorado	Dr. L. M. Leisenring	Placerville
Fresno	Dr. W. T. Burks	Fresno
Glenn	Dr. J. A. Randolph	Willows
Humboldt	Dr. Carl T. Wallace	Eureka
Imperial	Dr. Virgil McCoombs	El Centro
Inyo	Dr. I. J. Woodin	Independence
Kern	Dr. G. M. Bumgarner	Bakersfield
Kings	Dr. Ralph Motherol	Hanford
Lake	Dr. W. E. Upton	Kelseyville
Lassen	Dr. W. E. Dozier	Susanville
Los Angeles	Dr. E. O. Sawyer	Los Angeles
Madera	Dr. Mary R. Butin	Madera
Marin	Dr. J. H. Kuser	Novato
Mariposa	Dr. F. L. Wright	Mariposa
Mendocino	Dr. J. Liftchild	Ukiah
Merced	Dr. C. H. Castle	Merced
Modoc	Dr. John Stille	Alturas
Mono*	Dr. R. A. Cushman	Bridgeport
Monterey	Dr. Garth Parker	Salinas
Napa	Dr. E. G. Smart	Napa
Nevada	Dr. Carl P. Jones	Grass Valley
Orange	Dr. John Wehrly	Santa Ana
Placer	Dr. O. L. Barton	Loomis
Plumas	Dr. F. D. Walsh	Quincy
Riverside	Dr. George E. Tucker	Riverside
Sacramento	Dr. Hugh Beattie	Elk Grove
San Benito	Dr. J. M. O'Donnell	Hollister
San Bernardino	Dr. Phillip M. Savage	San Bernardino
San Diego	Dr. Nathan Hunt	San Diego
San Francisco	Dr. R. G. Brodrick	San Francisco
San Joaquin	Dr. R. B. Knight	Stockton
San Luis Obispo	Dr. H. M. Cox	San Luis Obispo
San Mateo	Dr. W. G. Beattie	Colma
Santa Barbara	Dr. J. C. Bainbridge	Santa Barbara
Santa Clara	Dr. William Simpson	San Jose
Santa Cruz	Dr. W. R. Congdon	Santa Cruz
Shasta	Dr. F. Stabel	Redding
Sierra	Dr. R. B. Davy	Downsville
Siskiyou	Dr. F. J. McNulty	Yreka
Solano	Dr. S. G. Bransford	Suisun
Sonoma	Dr. P. A. Meneray	Santa Rosa
Stanislaus	Dr. F. R. De Lappe	Modesto
Sutter	Dr. E. V. Jacobs	Meridian
Tehama	Dr. E. E. Thompson	Red Bluff
Trinity	Dr. D. B. Fields	Weaverville
Tulare	Dr. W. A. Preston	Visalia
Tuolumne	Dr. Wm. Lyman Hood	Sonora
Ventura	Dr. A. A. Maulhardt	Oxnard
Yolo	Dr. W. J. Blevins	Woodland
Yuba	Dr. J. H. Barr	Marysville

LIST OF CITY HEALTH OFFICERS.

City.	Health officer.	City.	Health officer.
Alameda	Dr. A. Hieronymus	Calexico	Dr. Wm. F. Smith
Albany	Dr. Robt. Hector	Chico	G. H. Taylor
Alhambra	Dr. F. E. Corey	Chino	Dr. John W. Callnon
Alturas	Dr. John Stille	Claremont	
Alviso		Cloverdale	Dr. Cory C. Ladyard
Anaheim	Dr. J. L. Beebe	Coalinga	Dr. H. S. Warren
Antioch	Dr. W. S. George	Colfax	
Arcadia		Colton	Dr. L. A. J. La Motte
Arcata	Dr. G. W. McKinnon	Colusa	Dr. C. A. Poage
Arroyo Grande		Compton	J. W. Stone
Auburn	A. S. Waldo	Concord	Dr. F. F. Neff
Azusa	Dr. L. W. Atkinson	Coram	Geo. H. Thomas
Bakersfield	S. D. Mullins	Corning	Dr. W. F. Maggard
Belvedere	Dr. Florence Scott	Corona	Dr. W. H. Chapman
Benicia	Dr. W. L. McFarland	Coronado	Dr. Raffaele Lorini
Berkeley	Dr. J. J. Benton	Cottonwood	Dr. A. B. Gilliland
Biggs	Dr. B. Caldwell	Covina	
Bishop	Dr. J. W. Shute	Crescent City	
Blue Lake	Dr. G. N. Wood	Daly City	
Brawley	Dr. L. L. Lindsey	Davis	Dr. W. E. Bates
Burbank		Delano	Dr. H. Hildreth
Burlingame		Dinuba	H. Hurst
Calistoga	Dr. Henry Abrons	Dorris	Dr. A. A. Atkinson

LIST OF CITY HEALTH OFFICERS—Continued.

City.	Health officer.
Dixon.....	W. C. Rhem
Dunsmuir.....	Dr. W. B. Mason
Eagle Rock.....	Dr. C. H. Phinney
Elsinore.....	Dr. George D. Keeler
Emeryville.....	Dr. A. T. Drennan
Escondido.....	Dr. David Crise
Etna Mills.....	Dr. W. H. Haines
Eureka.....	Dr. L. A. Wing
Exeter.....	Dr. A. D. McLean
Fairfield.....	Dr. S. G. Bransford
Ferndale.....	Dr. C. A. Phelan
Fort Bragg.....	Dr. L. C. Gregory
Fort Jones.....	Thos. Bransom
Fortuna.....	Dr. Geo. S. Loveren
Fowler.....	Dr. W. T. Crawford
Fresno.....	Dr. Geo. H. Aiken
Fullerton.....	Dr. F. J. Gobar
Gilroy.....	Dr. John A. Clark
Glendale.....	Dr. R. E. Chase
Grass Valley.....	Paul E. Sears
Gridley.....	Dr. L. L. Thompson
Hanford.....	Dr. C. L. Scott
Hayward.....	Dr. G. E. Reynolds
Healdsburg.....	Dr. J. W. Seawell
Hemet.....	Dr. A. B. Eadie
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Kingsburg.....	_____
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CALIFORNIA STATE BOARD OF HEALTH

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MONTHLY BULLETIN

Vol. 8

AUGUST, 1912

No. 2

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THE CALIFORNIA STATE BOARD OF HEALTH.

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REGULAR MEETINGS.

The meetings of the California State Board of Health are held regularly the first Saturday of each month, but the quarterly meetings required by law to be held at the Capitol of the State are ordinarily designated as January, April, July, and October.

By courtesy of the University of California the Food and Drug Laboratory and the Hygienic Laboratory are located in University buildings at Berkeley, California.

Address all communications to the

SECRETARY, Sacramento, Cal.

AUGUST BULLETIN.

REPORT OF THE BUREAU OF ADMINISTRATION FOR JULY, 1912.

JOHN F. LEINEN, Director.
Executive Division.

The correspondence and administrative work were unusually heavy owing to the appearance of typhoid fever in several communities, where failure to promptly control it would have resulted in a large number of cases.

The number of nuisances which the State Board of Health was requested by local authorities to investigate was large. Several of these situations involved inter-county problems of considerable importance.

Summary of Office Work.

Items.	Total.	Number of subjects.	Adminis- trative.	Morbid- ity.	Inter- bureau.	Miscel- laneous.
Letters received	2,320	172	752	426	512	630
Letters sent	2,631	172	820	490	631	690
Circular letters sent	326	1	-----	326	-----	-----
Report blanks sent	1,752	8	132	1,470	150	-----
Reports received	1,340	10	130	900	310	-----
Press clippings, newspapers, and bulletins received	2,125	36	200	1,100	825	-----
Accounts audited	152	-----	22	-----	130	-----
Estimates approved (items)	154	-----	21	-----	133	-----
Checks issued	87	-----	10	-----	27	-----
Miscellaneous letters advising local health officers and com- munities	143	24	39	62	18	-----

Division of Morbidity Returns.

Morbidity Report for July, 1912.

Disease.	Cases.	Places.
Smallpox	40	8
Diphtheria	98	24
Typhoid fever	190	27
Measles	79	18
Scarlet fever	32	16
Mumps	29	6
Pneumonia	25	5
Tuberculosis	115	12
Poliomyelitis	183	10
Chicken pox	17	10
Whooping cough	40	11
Gonorrhea	8	5
Malaria	4	2
Erysipelas	16	3
Cerebro spinal meningitis	4	4
Rabies (human)	2	1
Leprosy	1	1
Tetanus	1	1
Malta fever	1	1
Dysentery	4	2
Glanders	2	1
Scabies	1	1
Amebiasis	2	1
Rotheln	2	1
Total	896	171

REPORT OF BUREAU OF VITAL STATISTICS FOR JULY, 1912.

GEORGE D. LESLIE, Director.

Work has been continued on the biennial report for 1910-11 in addition to the usual work of the bureau's staff.

July Statistical Tables.

The statistical summaries for the Vital Statistics of Records of July, 1912, will be found in the Bulletin for September; the statistics for the current month, August, can not be collected and tabulated for printing before the October issue, and will be in that number of this bulletin.

Statistical Summaries for June, 1912.

State Totals and Annual Rates.—The following table shows for California as a whole the birth, death, and marriage totals for the current and preceding months in comparison with those for the corresponding months of a year ago, as well as the annual rates per 1,000 population represented by the totals for the current and preceding months. The rates are based on an estimated midyear population of 2,579,874 for California in 1912, the estimate having been made by the Census Bureau method with slight modifications.

Birth, Death and Marriage Totals, with Annual Rates per 1,000 Population for Current and Preceding Months, for California: June.

Month.	MONTHLY TOTAL.		Annual rate per 1,000 population: 1912.
	1912.	1911.	
June—			
Births -----	3,309	2,986	15.6
Deaths -----	2,794	2,604	13.2
Marriages -----	3,079	2,976	14.6
May—			
Births -----	3,181	2,894	14.3
Deaths -----	3,028	2,888	13.8
Marriages -----	2,323	2,087	10.6

The birth, death, and marriage totals for June, as for preceding month, were much greater in 1912 than in 1911.

The birth total for each month of 1912 has exceeded that for the corresponding month of 1911 by monthly differences of from 300 to 500.

Moreover, the June marriage total for 1912 is by far the highest monthly total reported under the registration law of 1905, the several June totals being as follows: 1912, 3,079; 1911, 2,976; 1910, 2,636; 1909, 2,511; 1908, 2,251; 1907, 2,366, and 1907, 2,342.

County Totals.—The first table which follows below shows the monthly birth, death, and marriage totals for the principal counties of the State, the list being limited to counties having a population of at least 25,000 according to the Federal Census of 1910. Totals are also shown for San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), as well as for Los Angeles and Orange counties together.

City Totals.—The second of the following tables gives the birth and death totals for the principal freeholders' charter cities, the list including all chartered cities with a census population of at least 15,000 in

1910. The totals are given likewise for San Francisco in comparison with Oakland, Alameda, and Berkeley, the three cities adjoining one another on the east shore of San Francisco Bay, as well as for Los Angeles in comparison with neighboring charter cities (Long Beach, Pasadena, Pomona, and Santa Monica).

Birth, Death and Marriage Totals, for Principal Counties: June.

County.	JUNE, 1912.		
	Births.	Deaths.	Marriages.
California	3,309	2,794	3,079
Counties of more than 25,000 population (1910):			
Alameda	327	277	331
Butte	36	25	14
Contra Costa	51	22	12
Fresno	128	96	84
Humboldt	40	41	22
Kern	47	55	45
Los Angeles	907	655	807
Marin	18	25	93
Orange	84	34	122
Riverside	51	40	51
Sacramento	102	91	101
San Bernardino	99	88	61
San Diego	95	102	103
San Francisco	651	521	575
San Joaquin	21	69	63
San Mateo	32	23	50
Santa Barbara	52	25	22
Santa Clara	111	84	98
Santa Cruz	36	29	35
Solano	22	27	17
Sonoma	48	65	46
Tulare	43	21	39
Selected groups:			
San Francisco and other bay counties.....	1,079	868	1,061
Los Angeles and Orange counties.....	991	689	929

Birth and Death Totals, for Principal Cities: June.

City.	JUNE, 1912.	
	Births.	Deaths.
Freeholders' charter cities.....	2,135	1,699
Cities of more than 15,000 population (1910):		
Alameda	24	29
Berkeley	53	36
Fresno	57	38
Long Beach	38	28
Los Angeles	614	400
Oakland	208	171
Pasadena	48	41
Riverside	30	29
Sacramento	86	72
San Diego	65	73
San Francisco	651	521
San Jose	39	30
Stockton	7	43
Selected groups:		
San Francisco	651	521
Oakland, Alameda and Berkeley.....	285	236
Total, bay cities.....	936	757
Los Angeles	614	400
Neighboring cities	108	99
Total	722	499

Causes of Death.—The following table shows the classification of deaths in California for the current month, in comparison with the preceding month:

Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths for Current and Preceding Months, for California: June.

Cause of death.	Deaths: June.	Proportion per 1,000.	
		June.	May.
ALL CAUSES-----	2,794	1,000.0	1,000.0
Typhoid fever-----	38	13.6	9.9
Malarial fever-----	9	3.2	2.6
Measles-----	14	5.0	5.6
Scarlet fever-----	1	0.4	1.0
Whooping-cough-----	27	9.7	5.0
Diphtheria and croup-----	8	2.9	3.3
Influenza-----	3	1.1	3.0
Other epidemic diseases-----	18	6.5	4.6
Tuberculosis of lungs-----	301	107.7	141.0
Tuberculosis of other organs-----	69	24.7	25.1
Cancer-----	194	69.4	70.0
Other general diseases-----	107	38.3	46.6
Meningitis-----	29	10.4	7.3
Other diseases of nervous system-----	233	83.4	83.9
Diseases of circulatory system-----	463	165.7	174.7
Pneumonia and broncho-pneumonia-----	151	54.0	62.1
Other diseases of respiratory system-----	47	16.8	18.8
Diarrhea and enteritis, under 2 years-----	127	45.5	20.8
Diarrhea and enteritis, 2 years and over-----	37	13.2	8.9
Other diseases of digestive system-----	153	54.8	51.2
Bright's disease and nephritis-----	164	58.7	64.7
Childbirth-----	37	13.2	8.3
Diseases of early infancy-----	118	42.2	34.7
Suicide-----	78	27.9	25.4
Other violence-----	230	82.3	74.6
All other causes-----	138	49.4	46.9

In June there were 463 deaths, or 16.6 per cent of all, from diseases of the circulatory system, and 370, or 13.2 per cent, from various forms of tuberculosis. Heart disease thus led tuberculosis greatly.

Other notable causes of death were: Diseases of the digestive system, 317; violence, 308; disease of the nervous system, 262; diseases of respiratory system, 198; cancer, 194; Bright's disease and nephritis, 164, and epidemic diseases, 118.

The deaths from epidemic diseases were as follows: Typhoid fever, 38; whooping-cough, 27; measles, 14; malarial fever, 9; diphtheria and croup, 8, and all other epidemic diseases, 22.

The deaths from the three leading epidemic diseases reported for the month were distributed by counties as follows:

Typhoid fever.		Whooping-cough.		Measles.	
Alameda-----	8	Alameda-----	7	Fresno-----	1
Fresno-----	2	Butte-----	1	Orange-----	1
Kern-----	1	Fresno-----	1	Sacramento-----	2
Los Angeles-----	6	Los Angeles-----	9	San Francisco-----	1
Orange-----	1	San Diego-----	4	San Joaquin-----	1
Riverside-----	1	Santa Clara-----	2	Santa Clara-----	6
Sacramento-----	3	Sonoma-----	1	Sonoma-----	1
San Bernardino-----	3	Stanislaus-----	1	Tulare-----	1
San Diego-----	1	Tulare-----	1		
San Francisco-----	6			Total-----	14
Santa Clara-----	2	Total-----	27		
Santa Cruz-----	1				
Solano-----	1				
Stanislaus-----	1				
Tulare-----	1				
Total-----	38				

Geographic Divisions.—The following table presents data for geographic divisions, including the metropolitan area, or San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), in comparison with the rural counties of Northern and Central California:

Deaths from Main Classes of Diseases, for Geographic Divisions: June.

Geographic division.	DEATHS: JUNE									
	All causes.	Epidemic diseases.	Tuberculosis (all forms).	Cancer.	Diseases of nervous system.	Diseases of circulatory system.	Diseases of respiratory system.	Diseases of digestive system.	Breast's disease and hepatitis.	Violence.
THE STATE.....	2,794	118	370	194	282	463	196	317	164	308
Northern California.....	336	6	35	15	44	62	29	25	18	43
Coast counties.....	179	3	17	6	33	40	16	7	11	16
Interior counties.....	157	3	18	9	11	22	13	18	7	27
Central California.....	1,482	73	168	121	122	260	102	187	61	168
San Francisco.....	521	11	69	54	32	119	24	62	24	48
Other bay counties.....	347	16	39	31	41	56	23	41	13	35
Coast counties.....	151	11	15	13	19	24	14	8	9	21
Interior counties.....	463	35	45	23	30	61	41	76	15	64
Southern California.....	976	39	167	58	96	141	67	105	85	97
Los Angeles.....	655	25	108	42	61	98	45	64	56	72
Other counties.....	321	14	59	16	35	43	22	41	29	25
Northern and Central California.....	1,816	79	203	136	166	322	131	212	79	211
Metropolitan area.....	868	27	106	85	73	175	47	103	37	83
Rural counties.....	950	52	95	51	93	147	84	109	42	128

Sex and Age Periods.—The proportion of the sexes among the 2,794 decedents in June was: Male, 1,689, or 60.5 per cent, and female, 1,105, or 39.5 per cent.

The following table shows the age distribution by numbers and per cents, of deaths classified by sex:

Deaths, Classified by Sex and Age Periods, with Per Cents by Age Periods, for California: June.

Age period.	Deaths.			Per cent		
	Total	Male.	Female.	Total	Male.	Female.
ALL AGES.....	2,794	1,689	1,105	100.0	100.0	100.0
Under 1 year.....	359	210	149	12.9	12.4	13.5
1 to 4 years.....	152	77	75	5.4	4.6	6.8
5 to 14 years.....	82	41	41	2.9	2.4	3.7
15 to 24 years.....	179	95	84	6.4	5.6	7.6
25 to 34 years.....	287	180	107	10.3	10.6	9.7
35 to 44 years.....	289	177	112	10.3	10.5	10.1
45 to 54 years.....	348	241	107	12.5	14.3	9.7
55 to 64 years.....	364	221	143	13.0	13.1	12.9
65 years and over.....	734	447	287	26.3	26.5	26.0

This table shows that relatively more females than males died at under 1 year, 1 to 4 years, 5 to 14 years, and 15 to 24 years, or at each age period under 25 years of age.

Occupations.—The table below gives, for deaths 15 years and over, the number of men and women for whom some occupation was reported in contrast with those for whom no gainful occupation was shown:

Deaths. Fifteen Years and Over, Classified by Sex and Occupation, with Per Cents by Sex, for California: June.

	Deaths.			Per cent male.	Per cent female.
	Total.	Male.	Female.		
15 YEARS AND OVER-----	2,201	1,361	840	61.8	38.2
Occupation reported -----	1,264	1,192	72	94.3	5.7
No gainful occupation-----	937	169	768	18.0	82.0

Of the 1,264 decedents for whom occupations were reported the males numbered 1,192, or 94.3 per cent, and the females only 72, or 5.7 per cent.

The following table shows the distribution of male decedents 15 years and over, engaged in the main kinds of occupation:

Deaths of Males Fifteen Years and Over Engaged in Gainful Occupations, Classified by Kind of Occupation, with Per Cents, for California: June.

Kind of occupation.	Males 15 years and over.	
	Deaths.	Per cent.
-----	1,192	100.0
-----	--	-

REPORT OF THE BUREAU OF THE HYGIENIC LABORATORY FOR JULY.

WILBUR A. SAWYER, M.D., Director.

More Human Rabies.

During the month of July specimens of brain tissue from two men were examined in the laboratory. The men had died with the symptoms of rabies from five to seven weeks after they were bitten by dogs. In neither case was rabies in the dog suspected by the victim, although in one instance the dog was evidently sick and died the following day. In the examination of each specimen conclusive evidence of rabies was obtained.

Public Health Lectures.

The series of lectures on public health which was being given before the Summer Session of the University of California and the public was continued during July. Dr. H. B. Graham, Assistant Professor of Surgery in Stanford University, gave an illustrated lecture, July 2d, on "The Effects of Neglect of the Ears, Nose and Throat in School Children." Dr. W. A. Sawyer spoke, July 9th, on "Rabies and Its Control," illustrating his talk with lantern views. A series of motion pictures, which had been selected by Dr. Sawyer for their public health lessons, were shown on July 11th. An illustrated lecture on "Tuberculosis" was given, July 16th, by Dr. R. G. Brodrick, Health Officer of San Francisco. Dr. John N. Force, Assistant Professor of Epidemiology in the University of California, delivered an illustrated lecture, July 18th, on "Great Epidemic Diseases, Their History and Control." Captain John R. Barber, Medical Corps of the United States Army, spoke, July 23d, on "Sanitary Experiences at a Prison Stockade in the Tropics." Dr. George F. Reinhardt, Professor of Hygiene and University Physician in the University of California, gave a lecture, July 25th, on "Student Health." Dr. F. P. Gay, Professor of Pathology in the University of California, gave a lecture, illustrated with lantern views, July 30th, on "Principles of Immunity which have been Successfully Applied in Preventing and Curing Disease." This series of lectures will be concluded on August 1st with an illustrated talk by Professor M. E. Jaffa, Director of the Bureau of Food and Drugs of the State Board of Health. His subject will be "The Consumer and the Pure Food and Drug Law."

Division of Biological Examinations.

Summary of Examinations Made in the California State Hygienic Laboratory
During the Month of July, 1912.

Condition suspected.	Positive.	Negative.	Inconclusive.	Total.
Main Laboratory at Berkeley:				
Anthrax	1	3	-----	4
Diphtheria	24	19	-----	43
Gonococcus infection	4	6	-----	10
Hookworm	-----	1	-----	1
Malaria	5	11	-----	16
Rabies	12	3	2	17
Tuberculosis	5	16	-----	21
Typhoid	4	28	-----	32
Water pollution	2	6	-----	8
Miscellaneous	1	3	-----	4
				156
Northern Branch at Sacramento:				
Diphtheria	2	5	-----	7
Tuberculosis	4	4	-----	8
Typhoid	1	8	-----	9
				24
San Joaquin Valley Branch at Fresno:				
Diphtheria	-----	3	-----	3
Malaria	-----	1	-----	1
Tuberculosis	2	1	-----	3
Typhoid	-----	1	-----	1
				8
Southern Branch at Los Angeles:				
Diphtheria	3	7	-----	10
Tuberculosis	-----	1	-----	1
Typhoid	1	1	-----	2
				13
Total number of examinations.....				201

Testing of Disinfectants.

Examinations of Disinfectants During the Month of July, 1912.

Main Laboratory at Berkeley:	
Determinations of the Hygienic Laboratory phenol coefficient.....	5

Division of Preventive Therapeutics.

Pasteur Treatment for the Prevention of Rabies by the State Hygienic Laboratory
During the Month of July, 1912.

	Treatment commenced.	Treatment completed.
Main Laboratory at Berkeley.....	2	2
Northern Branch at Sacramento.....	0	0
San Joaquin Valley Branch at Fresno.....	2	1
Southern Branch at Los Angeles.....	0	0
Laboratory of Sacramento Board of Health, by deputized bacteriologist	1	1
Laboratory of San Francisco Board of Health, by deputized bacteriologist	6	1
Laboratory of Los Angeles Board of Health, by deputized bacteriologist	0	0
Laboratory of Letterman General Hospital, Presidio, by deputized bacteriologist	1	0
Total number of treatments.....		16

Public Health Instruction.*Participation in Instruction in Public Health During July, 1912.***Main Laboratory at Berkeley:**

Bacteriological instruction outfits sent out.....	0
Bacteriological instruction outfits in use.....	15
Exhibits loaned from Hygienic Museum.....	0
Lectures or talks by the director.....	1

Division of Epidemiological Investigations.*Epidemiological Investigations During July, 1912.***Main Laboratory at Berkeley:**

Special Investigations by the Director.....	3
Examination of sample of clams from San Francisco Bay for evidence of sewage pollution.	
Investigation of a fourth case of human rabies in San Francisco.	
Investigation of a fifth case of human rabies in San Francisco.	

REPORT OF BUREAU OF FOODS AND DRUGS FOR JULY, 1912.**MYER E. JAFFA, Director.**

The space available for the report of this Bureau is again devoted to Food Inspection Decisions and Notices of Judgment. F. I. D. No. 147 and No. 148 are of special importance to California. The pure food laws of this State require the State Board of Health to recognize the standards adopted by the United States Department of Agriculture as a minimum standard. It is to be hoped that all persons interested in the fruit canning industries of California, or the manufacture and sale of any beverages containing absinth, will note these new decisions.

Food Inspection Decision 146.**ON THE USE OF SACCHARIN IN FOODS.**

There appears to exist a misconception of the position of the Department of Agriculture as to the use of saccharin in foods as announced in Food Inspection Decision No. 142. That decision prohibits the use of saccharin in foods. The law defines the term "drug" and it is considered that saccharin has its proper place in products coming within this definition.

It is recognized that certain specific products generally classified as foods, and sweetened with saccharin, may be required for the mitigation or cure of disease. It is not intended to prohibit the manufacture or sale of such products, provided they are labeled so as to show their true purpose and the presence of saccharin is plainly declared upon the principal label. This must not be interpreted to mean that the use of saccharin in foods prepared for ordinary consumption is permissible even if declared on the label.

Food Inspection Decision 147.**ABSINTH.**

It is generally recognized in countries which have had experience with the sale and consumption of absinth that this beverage is dangerous to health. Belgium, Switzerland, and Holland have forbidden its manufacture, sale, and importation; absinth is also condemned by the laws of Brazil and its importation forbidden.

The Food and Drugs Act of June 30, 1906, section 11, forbids the importation of any food or drug which is "of a kind forbidden entry into, or forbidden to be sold or restricted in sale in the country in which it is made, or from which it is exported," and also of any food or drug which is "otherwise dangerous to the health of the people of the United States."

Importations of absinth into the United States, therefore, are prohibited, both because they come from countries which forbid or restrict its manufacture and sale, and because these products are injurious to the health of the people of the United States.

Section 7, paragraph 5, in the case of foods, of the Food and Drugs Act, June 30,

1906), provides further that an article shall be deemed to be adulterated within the meaning of the act "if it contains any added poisonous or other added deleterious ingredient which may render such article injurious to health." The beverage commonly known as absinth is a manufactured product containing wormwood, or absinth (*Artemisia absinthium*), an added deleterious ingredient. The interstate shipment of this product is, therefore, prohibited under this provision of the Food and Drugs Act.

The Secretary of Agriculture, therefore, will regard as adulterated under the Food and Drugs Act absinth which, on and after October 1, 1912, is manufactured or offered for sale in the District of Columbia or the Territories, or shipped in interstate commerce or offered for importation into the United States.

Food Inspection Decision 148.

USE OF COPPER SALTS IN THE GREENING OF FOODS.

The question of the use of copper salts in the greening of foods was referred by the Secretary of Agriculture, on March 11, 1909, to the Referee Board of Consulting Scientific Experts. Exhaustive investigations have been conducted by that board and the Department of Agriculture has received the report of the investigations. The questions which were referred to the Referee Board are as follows:

"Are vegetables greened with copper salts adulterated under the Food and Drugs Act of June 30, 1906, because,

"(a) a substance has been mixed or packed with them so as to reduce or lower or injuriously affect their quality or strength;

"(b) they have been mixed, colored, powdered, coated, or stained in a manner whereby damage or inferiority is concealed;

"(c) they contain any added poisonous or other added deleterious ingredient which may render such articles injurious to health?

"(1) in large quantities?

"(2) in small quantities?"

The main general conclusions reached by the Referee Board from a study of their experimental results and other considerations are as follows:

"(a) Copper salts used in the coloring of vegetables as in commercial practice can not be said to reduce or lower or injuriously affect the quality or strength of such vegetables as far as the food value is concerned;

"(b) Copper salts used in the greening of vegetables may have the effect of concealing inferiority inasmuch as the bright green color imparted to the vegetables simulates a state of freshness they may not have possessed before treatment;

"(c) In attempting to define a large daily quantity of copper, regard must be had to the maximum amount of greened vegetables which may be consumed daily. A daily dose of 100 grams of coppered peas or beans, which are the most highly colored vegetables in the market, would not ordinarily contain more than 100 to 150 milligrams of copper. Such a bulk of greened vegetables is so large, however, that it would hardly be chosen as a part of a diet for many days in succession. Any amount of copper above 150 milligrams daily may, therefore, be considered excessive in practice. A small quantity is that amount which in the ordinary use of vegetables may be consumed over longer periods. From this point of view 10 to 12 milligrams of copper may be regarded as the upper limit of a small quantity.

"It appears from our investigations that, in certain directions, even such small quantities of copper may have a deleterious action and must be considered injurious to health."

The Food and Drugs Act of June 30, 1906, provides that a food is adulterated "if it contains any added poisonous or other added deleterious ingredient which may render such article injurious to health." The act also provides that a food is adulterated "if it be * * * colored * * * in a manner whereby damage or inferiority is concealed." It is apparent from the findings of the Referee Board that all foods greened with copper salts are positively adulterated under the first above-quoted provisions of the law, and that in certain cases foods may be adulterated under the second above-quoted provision.

The Secretary of Agriculture, therefore, will regard as adulterated under the Food and Drugs Act foods greened with copper salts which, on and after January 1, 1913, are offered for entry into the United States, or are manufactured or offered for sale in the District of Columbia or the Territories, or are shipped in interstate commerce.

All previous food inspection decisions on the subject of greening of foods with copper salts are amended accordingly.

The complete report of the investigations and conclusions of the Referee Board on this subject will be published by the Department of Agriculture.

REPORT OF BUREAU OF PUBLICATIONS AND HEALTH INFORMATION FOR JULY, 1912.

GUY P. JONES, Acting Director.

During the past month poliomyelitis has become epidemic in Los Angeles County. Many inquiries concerning the disease have come to this department, and, in response, copies of the Medical Number of the Bulletin have been sent. This number contains not only articles on poliomyelitis, but also on syphilis, hookworm, pellagra, and many other diseases. It is the intention of the Board, later in the summer, to publish the most recent information regarding poliomyelitis. Many of the most celebrated medical investigators are devoting their whole time to poliomyelitis research, and some of the results of their labor will be announced in the contemplated publication.

Early in the fall the mailing list will undergo a thorough revision and subscribers who wish to be retained on this list would do well to send a card, with a request that the Bulletin be sent to them as issued. Subscribers who have changed their address should send a card to this department in order that the change may be registered at once.

LIST OF COUNTY HEALTH OFFICERS.

County.	Health officer.	Address.
Alameda	Dr. C. L. McKown	Niles
Alpine*	County Recorder Frank Smith	Markleeville
Amador	Dr. E. E. Endicott	Jackson
Butte	Dr. L. Q. Thompson	Gridley
Calaveras	Dr. Irwin B. March	San Andreas
Colusa	Dr. C. A. Poage	Colusa
Contra Costa	Dr. W. S. George	Antioch
Del Norte	Dr. E. M. Fine	Crescent City
El Dorado	Dr. L. M. Lelsenring	Placerville
Fresno	Dr. W. T. Burks	Fresno
Glenn	Dr. J. A. Randolph	Willows
Humboldt	Dr. Carl T. Wallace	Eureka
Imperial	Dr. Virgil McCoombs	El Centro
Inyo	Dr. I. J. Woodin	Independence
Kern	Dr. G. M. Bumgarner	Bakersfield
Kings	Dr. Ralph Motherol	Hanford
Lake	Dr. W. E. Upton	Kelseyville
Lassen	Dr. W. E. Dozier	Susanville
Los Angeles	Dr. E. O. Sawyer	Los Angeles
Madera	Dr. Mary R. Butin	Madera
Marin	Dr. J. H. Kuser	Novato
Mariposa	Dr. F. L. Wright	Mariposa
Mendocino	Dr. J. Liftchild	Ukiah
Merced	Dr. C. H. Castle	Merced
Modoc	Dr. John Stile	Alturas
Mono*	Dr. R. A. Cushman	Bridgeport
Monterey	Dr. Garth Parker	Salinas
Napa	Dr. E. G. Smart	Napa
Nevada	Dr. Carl P. Jones	Grass Valley
Orange	Dr. John Wehrly	Santa Ana
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Plumas	Dr. F. D. Walsh	Quincy
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Santa Cruz	Dr. W. R. Congdon	Santa Cruz
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Solano	Dr. S. G. Bransford	Suisun
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Tulare	Dr. W. A. Preston	Visalia
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Ventura	Dr. A. A. Maulhardt	Oxnard
Yolo	Dr. W. J. Blevins	Woodland
Yuba	Dr. J. H. Barr	Marysville

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Albany	Dr. Robt. Hector	Inglewood	Dr. H. A. Putnam
Alhambra	Dr. F. E. Corey	Jackson	George Hambric
Alturas	Dr. John Stille	Kennett	Dr. J. P. Sandholdt
Alviso		Kernville	
Anaheim	Dr. J. L. Beebe	King City	
Antioch	Dr. W. S. George	Kingsburg	
Arcadia		Lakeport	Jabes Banks
Arcata	Dr. G. W. McKinnon	Larkspur	
Arroyo Grande		Lincoln	F. R. Elder
Auburn	A. S. Waldo	Lindsay	Dr. W. Tourtillot
Asus	Dr. L. W. Atkinson	Livermore	Dr. H. G. McGill
Bakersfield	S. D. Mullins	Lodi	Dr. F. W. Colman
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Benicia	Dr. W. L. McFarland	Lompoc	
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Brawley	Dr. L. L. Lindsey	Loyalton	Dr. G. L. Coates
Burbank		Madera	
Burlingame		Maricopa	Dr. H. N. Taylor
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Calxico	Dr. Wm. F. Smith	Marysville	Wm. Meek
Chico	G. H. Taylor	Mayfield	Dr. F. M. Seibert
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Claremont		McKittrick	G. M. Chitwood
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Fullerton	Dr. F. J. Gohar	Piedmont	
Gilroy	Dr. John A. Clark	Point Arena	
Glendale	Dr. R. E. Chase	Potter Valley	E. B. McGinnis
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Hermosa Beach	G. A. Cleveland	Richmond	Dr. A. J. McKinnon
Hercules	Dr. M. L. Fernandez	Rio Vista	Dr. Thos. R. Griffith
Hillsborough		Riverside	H. D. Fleasche
Hollister	Dr. R. G. Curtis	Rocklin	Dr. R. H. Ashby
Hollywood	E. O. Palmer	Roseville	
Huntington Beach	Dr. G. A. Shank	Ross	Dr. Wm. K. Lindsay
Huntington Park	Dr. W. Thompson	Sacramento	S. H. Pettit
		Saint Helena	

LIST OF CITY HEALTH OFFICERS—Continued.

City.	Health officer.	City.	Health officer.
Salinas.....	S. A. McCollum	Stockton.....	Dr. R. T. McGurk
San Anselmo.....	Dr. Chipman	Susanville.....	Dr. E. S. Drucks
San Bernardino.....	Dr. C. V. McConnico	Suisun.....	_____
San Diego.....	Dr. F. H. Mead	Stanton.....	_____
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Sanger.....	_____	Taft.....	E. G. Wood
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San Rafael.....	Dr. W. F. Jones	Tulare.....	Dr. J. B. Rosson
San Mateo.....	Dr. S. G. Goodspeed	Turlock.....	Dr. F. B. Reardon
San Leandro.....	P. C. Du Bois	Ukiah.....	Dr. J. Liftchild
Santa Ana.....	Dr. J. I. Clark	Upland.....	W. C. Redman
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CALIFORNIA STATE BOARD OF HEALTH

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MONTHLY BULLETIN

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THE CALIFORNIA STATE BOARD OF HEALTH.

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STANLEY P. BLACK, M.D.

Division Bacteriologist and Field Officer.....Auditorium Building, Los Angeles

REGULAR MEETINGS.

The meetings of the California State Board of Health are held regularly the first Saturday of each month, but the quarterly meetings required by law to be held at the Capitol of the State are ordinarily designated as January, April, July, and October.

By courtesy of the University of California the Food and Drug Laboratory and the Hygienic Laboratory are located in University buildings at Berkeley, California.

Address all communications to the

SECRETARY, Sacramento, Cal.

SEPTEMBER BULLETIN.

COMMENTS.

SCHOOL BEGINS AGAIN.

Nature's Job. By far the most important event of the present month is the opening of the public schools. Approximately 500,000* young citizens of California, by decree of State law, must be conscripted and marshalled for reënlistment in the yearly battle with books and teaching apparatus. Conscripted!—at least to a large degree this is true. If the schools were conducted solely on the basis of volunteers from the unprodged ranks of our six- to seventeen-year-old citizens, bond issues for school houses would be less frequent. But whether conscripts or volunteers, they are by law and by the advice of their elders enlisted in another year's training for their future life work. It is worth considering the State's sponsibility in this matter.

Consider for a moment Nature's job. These children for the most part have been at play for two or three months—active appetite and muscle-building play. Not a moment of their precious summer has been lost in sitting still. Their days have been days like our ancient ancestors lived; full of yells and fights and feasts and conquests; glorious days in which lungs and muscles and steady nerves were the things that counted. The State steps in and says, "Children, this must stop. The nation no longer needs nimble-witted savages. You must learn to read and write, and do all the other things with your brains which civilization has devised for its own purposes. Go now into the schoolhouse and accept what awaits you there." And what do they accept? Eight months or more of physical inaction from 9 a. m. to 12, and from 1 to 2 or 4 or 5 p. m. Nature's job is to reduce the activities of the army of cells we call the human body, from one to the other of these extremes. This is not an easy task, as any engineer will testify. It is small wonder that the first weeks of each school are marked by "sick headaches," "bilious attacks," and a hundred and one minor disturbances of the body mechanism indicative of interference with the normal physiology of food and exercise and rest. The armies of cells which we call human bodies are the best organized and best disciplined armies in the world, but the job we assign them each year when school begins is an impossible task for a considerable percentage of them.

Dissemination of Knowledge—and Other Things. "A general diffusion of knowledge and intelligence being essential to the preservation of the rights and liberties of the people—," so runs the constitution of the State of California; therefore, we have public schools. The public school is rightly considered the greatest formative influence in the lives of American citizens, but teachers and laymen alike have been singularly blind to the fact that the school disseminates many things besides the knowledge scheduled in the curriculum. War and pestilence are associated throughout all history, because war offers the best opportunity for diseased persons from every

* This number is an estimate and includes all students, from the kindergarten to the university.

quarter to come together in the closest living conditions with thousands of well persons. It is so with school. Thousands of children assemble annually in the close associations of the schoolhouse and yard. It is inevitable that a child with a communicable disease should have many opportunities to spread it among his mates. If we appreciated the value of good health as we appreciate the value of property, we would maintain in every school department a health inspection service similar in its efficiency to our fire departments. Like a fire department which has to its credit a long list of promptly-extinguished little fires, and is thus rated high in efficiency, so such a health inspection department would be rated high, because of the promptness with which it discovered and "extinguished" a long list of single cases of communicable diseases.

Why the State Board of Health Endorses Health Inspection in the Schools.

The State Board of Health is engaged in the business of preventing disease. Health inspection, with adequate "follow-up" systems of application, constitutes the most far-reaching method of preventing disease that has been devised. There are approximately 350,000 families in California. About seventy-five per cent of these families are represented by children attending our schools. It is evident that a thorough system of daily inspection by teachers, medical examiners, and school nurses would make possible a sympathetic, intelligent coöperation among parents, school officers, and health officials. This is not a question of interfering with the individual rights or liberties of children or families. If the State has a right to say that parents must send their children to school, the State has the duty to see that these children are not exposed to disease or to other conditions dangerous to their health. When the parent surrenders his child at the door of the schoolhouse, he should have reasonable assurance that he will not have doctor's bills or funeral expenses to pay as a result of conditions which the school and health authorities of the State can prevent.

The years of childhood below fifteen are especially the years when health inspection should be maintained. The different habits of association after the age of fifteen and the demands for good health in commerce and factories largely tend to reduce the spread of those diseases which are of peculiar danger to children.

The school health inspection movement is a sane, farsighted business proposition which should receive the support of every citizen of the State.

Free Health.

The survey of May 13th, 1911, contains an article* by Frederick Almy, Secretary Buffalo Charity Organization Society, from which the following is quoted: "Free education was once considered radical, but it was followed by compulsory education and with compulsory education illiteracy became extinct among the native born. This free compulsory education was neither charity nor justice, though free schools began as charity. It was protection, for revenue only, for society saw that ignorance was costly and dangerous.

"Free health is now as radical, but it will come, and compulsory health will follow. No child is now allowed to be ignorant, whether its

* The Survey, Vol. XXVI, No. 7, p. 270.

parents are willing or unwilling; but disease is both more contagious and more dangerous than ignorance. Conversely, health is more precious than knowlege, both to the individual and to the community.

“The tenement father who sees his boy go through the grammar school, and then die of tuberculosis, would rather have a live son than a wise one. The wages of unskilled labor in the tenements do not allow health, but education is given free. Which would any father choose for his child? Which should humanity or policy first give?

“Public health is quite as important to the community as public education, and we shall at some time have free doctors as well as free teachers, leaving the private doctors, like the private schools, for the few who can afford them and prefer them.”

There is food for serious thought in this suggestion, though it is not likely to be the solution for the present unsatisfactory conditions of medical practice. The following article by Mr. George D. Leslie, Director of the Bureau of Vital Statistics, is also full of food for serious thought:

DEATHS FROM MEASLES, SCARLET FEVER, WHOOPING-COUGH, AND DIPHTHERIA.

GEORGE D. LESLIE.

The mortality from the children's epidemic diseases—measles, scarlet fever, whooping-cough, and diphtheria—is summarized in the following table for California as a whole in the five-year period, 1907 to 1911:

Number and Proportion of Deaths from Measles, Scarlet Fever, Whooping-cough, and Diphtheria, with Death Rate per 100,000 Population, for California: 1907 to 1911.

Year.	Measles.	Scarlet fever.	Whooping-cough.	Diphtheria and croup.
Deaths—State total.				
1911 -----	84	81	177	167
1910 -----	199	69	307	218
1909 -----	119	69	217	248
1908 -----	101	104	149	391
1907 -----	189	72	173	380
Proportion per 1,000 total deaths.				
Annual average: 1907 to 1911-----	4.4	2.5	6.4	8.9
1911 -----	2.5	2.4	5.2	4.9
1910 -----	6.2	2.1	9.5	6.7
1909 -----	3.8	2.2	7.0	8.0
1908 -----	3.2	3.3	4.8	12.5
1907 -----	6.1	2.3	5.6	12.2
Death rate per 100,000 population.				
Annual average: 1907 to 1911-----	6.1	3.5	8.8	12.4
1911 -----	3.4	3.3	7.1	6.7
1910 -----	8.3	2.9	12.8	9.1
1909 -----	5.2	3.0	9.4	10.8
1908 -----	4.6	4.7	6.7	17.6
1907 -----	8.9	3.4	8.1	17.9

From the averages for the five-year period it appears that among these children's diseases the mortality was greatest for diphtheria, and next, in descending order, for whooping-cough, measles, and scarlet

fever. Thus, the annual average proportion per 1,000 deaths in 1907 to 1911 was 8.9 for diphtheria and croup, 6.4 for whooping-cough, 4.4 for measles, and 2.5 for scarlet fever. Similarly, the annual average death rate per 100,000 population in this same five-year period was for diphtheria and croup, 12.4; for whooping-cough, 8.8; for measles, 6.1, and for scarlet fever, 3.5.

Reference to the number of deaths shows that the mortality from diphtheria decreased steadily in 1907 to 1911, the successive totals being 380, 391, 248, 218, and 167 (1911).

The deaths from whooping-cough, however, after falling from 173 for 1907 to 149 for 1908 rose to 217 for 1909 and 307 (the maximum) for 1910, falling back then greatly to only 177 for 1911.

The deaths from measles, similarly, fell from 189 in 1907 to 101 in 1908, and then rose to 119 for 1909 and 199 (the maximum) in 1910, falling off again sharply to a minimum of 84 in 1911.

The deaths from scarlet fever likewise varied somewhat in the five years, rising from 72 for 1907 to 104 (the maximum) for 1908, and falling to only 69 for both 1909 and 1910, while rising again to 81 for 1911.

Figures similar to those presented for California in 1907 to 1911 are available also for freeholders' charter cities in contrast with the rest of the State in the four-year period, 1908 to 1911, being summarized in the following table:

Number and Proportion of Deaths from Measles, Scarlet Fever, Whooping-cough, and Diphtheria, for Cities and Rest of State: 1908 to 1911.

Year.	Freeholders' charter cities.				Rest of State.			
	Measles.	Scarlet fever.	Whoop- ing-cough.	Diph- theria and croup.	Measles.	Scarlet fever.	Whoop- ing-cough.	Diph- theria and croup.
Deaths—								
1911 -----	65	33	85	92	19	48	92	75
1910 -----	107	39	148	124	92	30	159	94
1909 -----	71	47	133	129	48	22	84	119
1908 -----	54	35	71	207	47	69	78	184
Proportion per 1,000 total deaths.								
Annual average:								
1908 to 1911----	4.1	1.6	6.0	7.6	3.8	3.1	7.5	8.6
1911 -----	3.3	1.7	4.3	4.6	1.4	3.4	6.6	5.4
1910 -----	5.7	2.1	7.9	6.6	6.7	2.2	11.6	6.8
1909 -----	4.1	2.7	7.6	7.4	3.5	1.6	6.2	8.8
1908 -----	3.1	2.0	4.1	11.8	3.4	5.0	5.6	13.3

This table shows that in general there are relatively more deaths from the children's epidemic diseases in the rural districts of California than in freeholders' charter cities as a class. The annual average proportion per 1,000 total deaths in 1908 to 1911 for diphtheria and croup was 8.6 in rural districts against 7.6 in charter cities; for whooping-cough was 7.5 in rural districts against 6.0 in urban territory; and for scarlet fever was 3.1 outside cities against only 1.6 within them. The apparent exception for measles, with the average proportion only 3.8 in rural districts as compared with 4.1 in chartered cities, is due to the exceptionally low mortality for rural districts in 1911.

Comparison of individual cities is best made by reference to

figures for 1911, the last year covered by available statistics, as given in the table which follows:

Number and Proportion of Deaths from Measles, Scarlet Fever, Whooping-cough, and Diphtheria, for Individual Cities and Rest of State: 1911.

City.	Deaths: 1911.	Proportion per 1,000 total deaths							
		Measles	Scarlet fever	Whooping-cough	Diphtheria and croup	Measles	Scarlet fever	Whooping-cough	Diphtheria and croup
CALIFORNIA-----	34,012	84	81	177	167	2.5	2.4	5.2	4.9
29 Freeholders' charter cities -----	20,005	65	33	85	92	3.3	1.7	4.3	4.6
<i>Northern California.</i>									
Eureka -----	211		1		1		4.7		4.7
Napa -----	86								
Petaluma -----	92			2				21.7	
Santa Rosa -----	131								
Grass Valley -----	63		1	1			15.9	15.9	
<i>Central California.</i>									
San Francisco -----	6,496	32	15	31	21	4.9	2.3	4.8	3.2
Alameda -----	265	1		1	2	3.8		3.8	7.5
Berkeley -----	375			2				5.3	
Oakland -----	1,984	18	2	7	11	9.1	1.0	3.5	5.5
Richmond -----	118				3				25.4
Monterey -----	59			1				17.0	
Salinas -----	52			1	1			19.2	19.2
Palo Alto -----	45				1				22.2
San Jose -----	413		1				2.4		
Santa Cruz -----	176			2				11.4	
Watsonville -----	70								
Fresno -----	354	2		1	11	5.6		2.8	31.1
Sacramento -----	828	2		4	4	2.4		4.8	4.8
Stockton -----	487		1	3	2		2.1	6.2	4.1
Vallejo -----	137			2	1			14.6	7.3
<i>Southern California.</i>									
Los Angeles -----	5,000	8	8	20	22	1.6	1.6	4.0	4.4
Long Beach -----	300	1	1	2	2	3.3	3.3	6.7	6.7
Pasadena -----	429			1	3			2.3	7.0
Pomona -----	152								
Santa Monica -----	124								
Riverside -----	260		1	4	1		3.9	15.4	3.8
San Bernardino -----	266				2				7.5
San Diego -----	817	1	2		4	1.2	2.4		4.9
Santa Barbara -----	215								
Rest of State-----	14,007	19	48	92	75	1.4	3.4	6.6	5.4

The proportion of deaths from diphtheria was above the 1911 city average, 4.6 per 1,000, for thirteen cities, as follows: Fresno, 31.1; Richmond, 25.4; Palo Alto, 22.2; Salinas, 19.2; Alameda and San Bernardino, each 7.5; Vallejo, 7.3; Pasadena, 7.0; Long Beach, 6.7; Oakland, 5.5; San Diego, 4.9; Sacramento, 4.8; and Eureka, 4.7.

The proportion for whooping-cough exceeded the city average, 4.3 per 1,000, in twelve cities, as follows: Petaluma, 21.7; Salinas, 19.2; Monterey, 17.0; Grass Valley, 15.9; Riverside, 15.4; Vallejo, 14.6; Santa Cruz, 11.4; Long Beach, 6.7; Stockton, 6.2; Berkeley, 5.3; and Sacramento and San Francisco, each 4.8.

The proportion for measles equaled or exceeded the city average of 3.3 per 1,000 in the following five cities: Oakland, 9.1; Fresno, 5.6; San Francisco, 4.9; Alameda, 3.8; and Long Beach, 3.3.

The proportion for scarlet fever surpassed the city average of 1.7 per 1,000 in the following eight cities: Grass Valley, 15.9; Eureka, 4.7; Riverside, 3.9; Long Beach, 3.3; San Diego and San José, each 2.4; San Francisco, 2.3; and Stockton, 2.1.

The preceding table also shows that in Napa, Santa Rosa, Watsonville, Pomona, Santa Monica, and Santa Barbara in 1911 there were no deaths at all from any of the children's epidemic diseases—measles, scarlet fever, whooping-cough, and diphtheria. Certain other cities reported deaths from only one of these four diseases, namely: Petaluma, 2 deaths from whooping-cough; Berkeley, 2 deaths from whooping-cough; Richmond, 3 deaths from diphtheria and croup; Monterey, 1 death from whooping-cough; Palo Alto, 1 death from diphtheria; San José, 1 death from scarlet fever; Santa Cruz, 2 deaths from whooping-cough; and San Bernardino, 2 deaths from diphtheria.

REPORT OF BUREAU OF ADMINISTRATION FOR AUGUST, 1912.

JOHN F. LEINEN, Director.

Executive Division.

The following tabulation of routine work of the bureau is submitted:

Items.	Total.	No. of subjects.	Admin- trative.	Morbidity.	Inter- bureau.	Miscel- laneous.
Letters received	2,310	180	720	600	390	600
Letters sent	2,270	176	645	680	520	425
Circular letters sent.....	865	2	540	325	-----	-----
Report blanks sent.....	1,830	9	150	1,520	160	-----
Reports received	1,427	12	142	1,025	260	-----
Press clippings, bulletins and newspapers received	1,920	45	200	1,120	600	-----
Accounts audited	152	-----	22	-----	130	-----
Estimates, approved, items	165	-----	25	-----	140	-----
Checks issued	121	-----	18	-----	103	-----
General orders issued.....	26	-----	10	-----	16	-----
Miscellaneous letters advising local health officers and com- munities	154	25	35	82	37	-----

Division of Morbidity Returns.
Morbidity Report for August, 1912.

Disease.	Cases.	Place.
Poliomyelitis	125	2
Smallpox	69	12
Typhoid	231	43
Diphtheria	62	19
Scarlet Fever	56	20
Whooping-cough	34	10
Pneumonia	34	5
Tuberculosis	159	11
Chickenpox	16	7
Gonorrhœa	8	5
Syphilis	1	1
Mumps	37	10
Measles	44	11
Malaria	59	7
Erysipelas	5	8
Glanders	5	1
Hookworm	1	1
Scabies	1	1
Cerebro spinal meningitis.....	1	1
Totals	948	127

REPORT OF BUREAU OF VITAL STATISTICS.

GEORGE D. LESLIE, Director.

Work has been continued on the biennial report for 1910-11 in addition to the usual work of the bureau's staff.

August Statistical Tables.

The statistical summaries for the Vital Statistics of Records of August, 1912, will be found in the Bulletin for October; the statistics for the current month, September, can not be collected and tabulated for printing before the November issue, and will be in that number of this Bulletin.

Statistical Summaries for July, 1912.

State Totals and Annual Rates.—The following table shows for California as a whole the birth, death, and marriage totals for the current and preceding months in comparison with those for the corresponding months of last year, as well as the annual rates per 1,000 population represented by the totals for the current and preceding months. The rates are based on an estimated midyear population of 2,579,874 for California in 1912, the estimate having been made by the Census Bureau method with slight modifications.

Birth, Death and Marriage Totals, with Annual Rates per 1,000 Population for Current and Preceding Months for California: July.

Month.	Monthly total.		Annual rate per 1,000 population: 1912.
	1912.	1911.	
July—			
Births	3,366	3,003	15.4
Deaths	2,982	2,591	13.6
Marriages	2,786	2,865	12.8
June—			
Births	3,309	2,986	15.6
Deaths	2,794	2,604	13.2
Marriages	3,079	2,976	14.6

The birth, death and marriage totals for July, as for preceding months, were much greater in 1912 than in 1911. The birth registration has been much greater each month this year than in the corresponding month of last year.

County Totals.—The first of the following tables shows the monthly birth, death, and marriage totals for the principal counties of the State, the list being limited to counties having a population of at least 25,000 according to the Federal Census of 1910. Totals are also shown for San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), as well as for Los Angeles and Orange counties together.

City Totals.—The second table which follows gives the birth and death totals for the principal freeholders' charter cities, the list including all chartered cities with a census population of at least 15,000 in 1910. Totals are given likewise for San Francisco in comparison with Oakland, Alameda, and Berkeley, the three cities adjoining one another on the east shore of San Francisco Bay, as well as for Los Angeles in comparison with neighboring chartered cities (Long Beach, Pasadena, Pomona, and Santa Monica).

Birth, Death and Marriage Totals, for Principal Counties: July.

County.	July, 1912.		
	Births.	Deaths.	Marriages.
California -----	3,366	2,982	2,786
Counties of more than 25,000 population (1910):			
Alameda -----	379	273	244
Butte -----	37	29	18
Contra Costa -----	46	16	20
Fresno -----	167	93	79
Humboldt -----	28	34	29
Kern -----	39	43	28
Los Angeles -----	919	749	610
Marin -----	23	9	155
Orange -----	39	61	105
Riverside -----	44	30	28
Sacramento -----	104	119	108
San Bernardino -----	77	89	63
San Diego -----	72	95	118
San Francisco -----	592	533	600
San Joaquin -----	57	97	59
San Mateo -----	42	18	37
Santa Barbara -----	25	30	31
Santa Clara -----	118	129	77
Santa Cruz -----	28	41	32
Solano -----	30	27	10
Sonoma -----	34	46	34
Tulare -----	43	23	32
Selected groups:			
San Francisco and other bay counties -----	1,082	849	1,056
Los Angeles and Orange counties -----	958	810	715

Birth and Death Totals, for Principal Cities: July.

City.	July, 1912.	
	Births.	Deaths.
Freeholders' charter cities -----	2,148	1,840
Cities of more than 15,000 population (1910):		
Alameda -----	36	25
Berkeley -----	56	30
Fresno -----	65	40
Long Beach -----	33	28
Los Angeles -----	613	505
Oakland -----	256	176
Pasadena -----	55	37
Riverside -----	27	14
Sacramento -----	85	96
San Diego -----	42	73
San Francisco -----	592	533
San Jose -----	43	55
Stockton -----	26	44
Selected groups:		
San Francisco -----	592	533
Oakland, Alameda and Berkeley -----	348	221
Total, Bay cities -----	940	754
Los Angeles -----	613	505
Neighboring cities -----	112	91
Totals -----	725	596

Causes of Death.—The following table shows the classification of deaths in California for the current month, in comparison with the preceding month:

Deaths from Certain Principal Causes with Proportion per 1,000 Total Deaths for Current and Preceding Months, for California: July.

Cause of death.	Deaths: July.	Proportion per 1,000.	
		July.	June.
ALL CAUSES-----	2,982	1,000.0	1,000.0
Typhoid fever -----	55	18.4	13.6
Malarial fever -----	11	3.7	3.2
Smallpox -----	4	1.3	-----
Measles -----	12	4.0	5.0
Scarlet fever -----	1	0.3	0.4
Whooping-cough -----	33	11.1	9.7
Diphtheria and croup-----	11	3.7	2.9
Influenza -----	2	0.7	1.1
Other epidemic diseases-----	25	8.4	6.5
Tuberculosis of lungs-----	313	105.0	107.7
Tuberculosis of other organs-----	61	20.5	24.7
Cancer -----	195	65.4	69.4
Other general diseases-----	127	42.6	38.3
Meningitis -----	28	9.4	10.4
Other diseases of nervous system-----	268	89.9	83.4
Diseases of circulatory system-----	490	164.3	165.7
Pneumonia and broncho-pneumonia-----	143	48.0	54.0
Other diseases of respiratory system-----	57	19.1	16.8
Diarrhea and enteritis, under 2 years-----	144	48.8	45.5
Diarrhea and enteritis, 2 years and over-----	34	11.4	13.2
Other diseases of digestive system-----	140	46.9	54.8
Bright's disease and nephritis-----	176	59.0	58.7
Childbirth -----	28	9.4	13.2
Diseases of early infancy-----	122	40.9	42.2
Suicide -----	68	22.8	27.9
Other violence -----	295	98.9	82.3
All other causes-----	139	46.6	49.4

In July there were 490 deaths, or 16.4 per cent of all, from diseases of the circulatory system, and 374, or 12.6 per cent, from various forms of tuberculosis. Heart disease thus led tuberculosis greatly, as in preceding months.

Other notable causes of death were: Violence, 363; diseases of the digestive system, 318; diseases of nervous system, 296; diseases of respiratory system, 200; cancer, 195; Bright's disease and nephritis, 176, and epidemic diseases, 154.

The deaths from epidemic diseases were as follows: Typhoid fever, 55; whooping-cough, 33; measles, 12; malarial fever, 11; diphtheria and croup, also 11, and all other epidemic diseases, 32.

The deaths from the three leading epidemic diseases reported for the month were distributed by counties as follows:

Typhoid fever		Whooping-cough		Measles	
Alameda	4	Alameda	2	Alameda	2
Butte	1	Butte	1	Contra Costa	2
Contra Costa	1	Fresno	3	Fresno	2
El Dorado	1	Kern	2	Los Angeles	1
Fresno	5	Los Angeles	16	Santa Clara	2
Glenn	1	Orange	1	Sonoma	1
Imperial	2	Riverside	2	Stanislaus	2
Kern	1	San Diego	2		
Los Angeles	3	San Francisco	1	Total	12
Marin	1	San Luis Obispo	2		
Merced	1	San Mateo	1		
Orange	4				
Riverside	1	Total	33		
Sacramento	7				
San Diego	1				
San Francisco	11				
San Joaquin	1				
Santa Clara	1				
Shasta	1				
Siskiyou	1				
Stanislaus	1				
Trinity	1				
Tulare	2				
Tuolumne	1				
Ventura	1				
Total	55				

Geographic Divisions.—The following table presents data for geographic divisions, including the metropolitan area, or San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), in comparison with the rural counties of Northern and Central California:

Deaths from Main Classes of Diseases, for Geographic Divisions: July.

Geographic divisions.	Deaths July										
	All causes	Exanthematic diseases	Tuberculosis (all forms)	Cancer	Diseases of nervous system	Diseases of circulatory system	Diseases of respiratory system	Diseases of digestive system	Bright's disease and nephritis	Violence	All other causes
THE STATE	2,982	154	374	195	296	490	200	318	176	363	416
<i>Northern California</i>	312	13	22	14	27	70	31	15	10	55	55
Coast counties.....	180	4	10	10	18	46	20	5	7	31	29
Interior counties.....	132	9	12	4	9	24	11	10	3	24	26
<i>Central California</i>	1,584	88	188	110	131	261	101	188	86	206	223
San Francisco.....	533	16	66	39	39	100	31	57	38	61	86
Other bay counties.....	316	17	35	26	26	54	33	30	19	32	44
Coast counties.....	199	6	30	14	21	40	15	26	8	19	20
Interior counties.....	536	49	57	31	45	67	22	75	21	96	73
<i>Southern California</i>	1,086	53	164	71	138	159	68	115	80	100	138
Los Angeles.....	749	37	116	52	99	110	49	69	62	55	100
Other counties.....	337	16	48	19	39	49	19	46	18	45	38
<i>Northern and Central California</i>	1,896	101	210	124	158	331	132	203	96	263	278
Metropolitan area.....	849	33	101	65	65	154	64	87	57	93	130
Rural counties.....	1,047	68	109	59	93	177	68	116	39	170	148

Sex and Age Periods.—The proportion of the sexes among the 2,982 decedents in July was: Male, 1,795, or 60.2 per cent, and female, 1,187, or 39.8 per cent.

The following table shows the age distribution by numbers and per cents, of deaths classified by sex:

Deaths Classified by Sex and Age Periods, with Per Cents by Age Periods, for California: July.

Age period.	Deaths.			Per cent.		
	Total	Male.	Female.	Total	Male.	Female.
ALL AGES-----	2,982	1,795	1,187	100.0	100.0	100.0
Under 1 year-----	377	219	158	12.6	12.2	13.3
1 to 4 years-----	161	73	88	5.4	4.1	7.4
5 to 14 years-----	94	51	43	3.2	2.8	3.6
15 to 24 years-----	207	138	69	6.9	7.7	5.8
25 to 34 years-----	297	165	132	10.0	9.2	11.1
35 to 44 years-----	325	196	129	10.9	10.9	10.9
45 to 54 years-----	349	231	118	11.7	12.9	10.0
55 to 64 years-----	370	248	122	12.4	13.8	10.3
65 years and over-----	802	474	328	26.9	26.4	27.6

This table shows that relatively more females than males died at under 1 year, 1 to 4 years, and 5 to 14 years, the period of infancy and childhood, as well as at 25 to 34 years, a chance exception, and at 65 years and over, the period of old age.

Occupations.—The table below gives, for deaths 15 years and over, the number of men and women for whom some occupation was reported in contrast with those for whom no gainful occupation was shown:

Deaths, Fifteen Years and Over, Classified by Sex and Occupation, with Per Cents by Sex, for California: July.

	Deaths.			Per cent male.	Per cent female.
	Total.	Male.	Female.		
15 YEARS AND OVER-----	2,350	1,452	898	61.8	38.2
Occupations reported-----	1,348	1,264	84	93.8	6.2
No gainful occupation-----	1,002	188	814	18.8	81.2

Of the 1,348 decedents for whom occupations were reported the males numbered 1,264, or 93.8 per cent, and the females only 84, or 6.2 per cent.

The following table shows the distribution of male decedents 15 years and over, engaged in the main kinds of occupation :

Deaths of Males, Fifteen Years and Over, Engaged in Gainful Occupations, Classified by Kinds of Occupations, with Per Cents, for California: July.

Kind of occupation.	Males 15 years and over.	
	Deaths.	Per cent.
ALL OCCUPATIONS-----	1,264	100.0
Professional -----	73	5.8
Clerical and official-----	87	6.9
Mercantile and trading-----	97	7.7
Public entertainment -----	39	3.1
Personal service, police and military-----	39	3.1
Laboring and servant-----	258	20.4
Manufacturing and mechanical industry-----	238	18.8
Agriculture, transportation and other outdoor-----	428	33.8
All other occupations-----	5	0.4

Of the 1,264 male decedents for whom occupations were reported 428, or 33.8 per cent, were engaged in agriculture, transportation, and other outdoor pursuits; 258, or 20.4 per cent, in laboring and servant work; 238, or 18.8 per cent, in manufacturing and mechanical industry, and altogether 340, or 27.0 per cent, in professional, clerical and official, mercantile and trading, and all other occupations.

**REPORT OF THE BUREAU OF THE HYGIENIC LABORATORY
FOR AUGUST.**

WILBUR A. SAWYER, M.D., Director.
Health Officials' Conference.

The Third Annual Conference of State, County and Municipal Health Officials will be held this year in one of the lecture halls of the University of California in Berkeley from September 23d to 28th. The close proximity of the meeting place to the State Food and Drug Laboratory, the State Hygienic Laboratory, the certified dairy of the University of California, the University Infirmary, a large commercial biological laboratory, and the health departments of the cities around San Francisco Bay will permit the delegates to become acquainted with these institutions. The program for the convention is being prepared, and acceptances have already been received from a number of prominent health officials who were asked to read papers or to speak in opening the discussions. The local committee of arrangements consists of the directors of the two laboratories of the State Board of Health, and of a third member from the faculty of the University of California. The committee is striving to make the conference exceedingly interesting and profitable to those who wish to become more efficient through the experiences of others. In addition to the scientific program, which will occupy most of the time of the conference, pilgrimages by automobile are being planned for those wishing to visit local institutions which have a special bearing on public health, and arrangements are being made for a trip by boat to the quarantine and immigration stations at Angel Island.

Epidemiological Investigations.

It certainly begins to look as though the public would soon procure for itself protection from some of our well-understood preventable diseases. In the month of August the attention of the State Board of Health was called to three cases of typhoid fever which had possibly been contracted on a large passenger steamer. With the coöperation of the owners, a thorough investigation of the ship, the crew, and the water and food supplies was made by the Director and the Chief Bacteriologist of the Laboratory, both on board the ship while it was in port, and in the Laboratory. The results were exceedingly reassuring, inasmuch as no evidence of typhoid organisms could be discovered either in the water supply or in members of the crew suspected of being carriers, and it seemed probable that the cases leading to the investigation had been contracted away from the ship. As no further cases have developed since the investigation, the conclusions arrived at were probably correct. Health workers who are striving to reduce the mortality and the morbidity in their communities are looking forward to the time when the public will demand immediate investigation of the appearance of typhoid fever anywhere in California with a view to terminating the source of the infection. Placing the blame for one or two cases in many instances would permit the removal of a source of infection which, if uninterrupted, would involve large groups of cases. We Californians need more trained epidemiologists who can hurry to the scene of an outbreak of the disease, and devote all of their time to investigation until the responsibility for the trouble has been discovered and a remedy has been suggested.

Division of Biological Examinations.***Summary of Examinations Made in the California State Hygienic Laboratory During the Month of August, 1912.***

Condition suspected.	Positive.	Negative.	Inconclusive.	Total.
Main Laboratory at Berkeley:				
Anthrax	1	3	-----	4
Diphtheria	48	119	-----	167
Gonococcus infection	7	10	-----	17
Malaria	4	5	-----	9
Rabies	13	14	2	29
Tuberculosis	3	24	-----	27
Typhoid	5	75	-----	80
Water pollution	1	5	-----	6
Miscellaneous		5	-----	5
				344
Northern Branch at Sacramento:				
Diphtheria		2	-----	2
Tuberculosis		7	-----	7
Typhoid	4	4	-----	8
				17
San Joaquin Valley Branch at Fresno:				
Anthrax			1	1
Diphtheria		1	1	2
Tuberculosis	2	2	-----	4
Typhoid		7	-----	7
				14
Southern Branch at Los Angeles:				
Diphtheria	2	2	-----	4
Typhoid	1	4	-----	5
Total number of examinations.....				384

Division of Preventive Therapeutics.

*Pasteur Treatment for the Prevention of Rabies by the State Hygienic Laboratory
During the Month of August, 1912.*

	Treatment commenced.	Treatment completed.
Main Laboratory at Berkeley.....	2	4
Northern Branch at Sacramento.....		
San Joaquin Valley Branch at Fresno.....	1	2
Southern Branch at Los Angeles.....		
Laboratory of Sacramento Board of Health, by deputized bacteriologist	1	1
Laboratory of San Francisco Board of Health, by deputized bacteriologist	17	9
Laboratory of Los Angeles Board of Health, by deputized bacteriologist	2	1
Laboratory of Letterman General Hospital, Presidio, by deputized bacteriologist		1
	23	18

Public Health Instruction.

Participation in Instruction in Public Health During August, 1912.

Main Laboratory at Berkeley:	
Bacteriological instruction outfits sent out.....	1
Bacteriological instruction outfits in use.....	13
Lectures or talks by the Director.....	0

Division of Epidemiological Investigations.

Epidemiological Investigations During August, 1912.

Main Laboratory at Berkeley:	
Special investigations by the Director.....	1
Investigation of a large passenger steamer, touching San Francisco, and its crew with regard to the source of infection of three cases of typhoid fever.	

REPORT OF BUREAU OF PUBLICATIONS AND HEALTH
INFORMATION.

GUY P. JONES, Acting Director.

The matter of purity in food products is of vital importance to every family, not alone from the standpoint of health, but for economic reasons as well. Cheap adulterants help to increase the size of the hole in the family purse, for if the food value of a product is lowered, a larger quantity of the product must be consumed by the individual to obtain the necessary fuel which his body demands.

For this reason, as well as for the purpose of knowing what is harmful in food and drugs, every family should have a copy of the pure food and drug laws. The intelligent use of this booklet may be the means of reducing household bills and of gaining greater efficiency for each member of the family.

This Bureau has for distribution a large number of these laws, one of which will be sent free of all cost to any person in the State expressing a desire for it. In addition, the booklet contains the Food Sanitation Act, which provides for the maintenance of sanitary conditions in all places where foodstuffs are made.

REPORT OF BUREAU OF FOODS AND DRUGS FOR AUGUST, 1912.

MYER E. JAFFA, Director.

The following Notices of Judgment have been received since the last issue of the bulletin. Any person wishing copies of these notices may obtain the same by addressing the Director, Bureau Foods and Drugs, University of California, Berkeley, California.

Notices of Judgment 1242-1364.

- No. 1242—Adulteration of Tomato Sauce.
- No. 1243—Adulteration and Misbranding of Candy.
- No. 1244—Adulteration of Candy.
- No. 1245—Misbranding of Evaporated Apples.
- No. 1246—Adulteration of Figs.
- No. 1247—Misbranding of "Creme De Cacao"; Adulteration and Misbranding of Blackberry Cordial; Adulteration and Misbranding of Peppermint Extract, Misbranding of "Bernardine"; Adulteration and Misbranding of Blackberry Cordial; Misbranding of "Creme De Cassia"; Misbranding of Champagne; Misbranding of "Orange Curacao."
- No. 1248—Adulteration and Misbranding of Apricot Brandy; Misbranding of Ginger Brandy.
- No. 1249—Adulteration of Grape Jam.
- No. 1250—Adulteration and Misbranding of White Oats.
- No. 1251—Adulteration of Berry Hill Mineral Water.
- No. 1252—Adulteration and Misbranding of Vinegar.
- No. 1253—Adulteration of Herring.
- No. 1254—Misbranding of Cracked Corn.
- No. 1255—Misbranding of Gin.
- No. 1256—Adulteration and Misbranding of Evaporated Apples.
- No. 1257—Adulteration and Misbranding of Pepper.
- No. 1258—Misbranding of Vinegar.
- No. 1259—Adulteration and Misbranding of Milk and Cream.
- No. 1260—Adulteration of Herring.
- No. 1261—Adulteration of Tomato Pulp.
- No. 1262—Adulteration of Peaches.
- No. 1263—Adulteration of Peanuts.
- No. 1264—Misbranding of Lemon Flavor.
- No. 1265—Alleged Misbranding of Grant's Hygienic Crackers.
- No. 1266—Adulteration and Misbranding of Lemon Extract.
- No. 1267—Adulteration of Tomato Pulp.
- No. 1268—Adulteration of Tomato Pulp.
- No. 1269—Adulteration of Catsup.
- No. 1270—Adulteration of Tomato Pulp.
- No. 1271—Adulteration of Tomato Catsup.
- No. 1272—Misbranding of Beer.
- No. 1273—Misbranding of Little Neck Clams.
- No. 1274—Adulteration of Raisins.
- No. 1275—Adulteration of Black Olives.
- No. 1276—Misbranding of Quince Jam, Peach Jam, Raspberry Jam, Strawberry Jam, Apricot Jam, Jelly Apple Flavor, and Blackberry Jam; Adulteration of Catsup.
- No. 1277—Misbranding of Coderre's Infants' Syrup.
- No. 1278—Misbranding of Macaroni.
- No. 1279—Adulteration of Coffee.
- No. 1280—Misbranding of Peas.
- No. 1281—Adulteration and Misbranding of Extract of Vanilla.
- No. 1282—Misbranding of Gold Medal Coffee Cocktail.
- No. 1283—Misbranding of Grape Juice.
- No. 1284—Adulteration and Misbranding of "Ferro-China Bisleribisleris Bitters"; Misbranding of "Fernet-Branca Bitters."
- No. 1285—Adulteration and Misbranding of Vinegar.
- No. 1286—Adulteration and Misbranding of Coffee.
- No. 1287—Adulteration and Misbranding of Vinegar.
- No. 1288—Alleged Adulteration of Saffron.

- No. 1289—Adulteration of Vanilla Flavor.
- No. 1290—Adulteration of Vinegar.
- No. 1291—Misbranding of a Product Called Drug Habit Cure.
- No. 1292—Adulteration of Vanilla Extract.
- No. 1293—Misbranding of Continental Gluten Feed.
- No. 1294—Misbranding of Continental Gluten Feed.
- No. 1295—Adulteration and Misbranding of Coffee.
- No. 1296—Adulteration of Frozen Eggs.
- No. 1297—Adulteration and Misbranding of Apple Cider Vinegar.
- No. 1298—Adulteration and Misbranding of Vinegar.
- No. 1299—Adulteration of Sardines.
- No. 1300—Adulteration of Dried Egg Albumen.
- No. 1301—Adulteration of Ice Cream Cones.
- No. 1302—Adulteration and Misbranding of Strawberry Preserves.
- No. 1303—Alleged Adulteration and Misbranding of Milk Products.
- No. 1304—Adulteration and Misbranding of Cider Vinegar.
- No. 1305—Misbranding of Olive Oil.
- No. 1306—Alleged Adulteration and Misbranding of Vanilla Tonka and Compound.
- No. 1307—Adulteration of Cream.
- No. 1308—Adulteration and Misbranding of Vinegar.
- No. 1309—Adulteration and Misbranding of Maple Sugar.
- No. 1310—Adulteration of Milk.
- No. 1311—Adulteration of Milk.
- No. 1312—Adulteration of Cream.
- No. 1313—Adulteration of Evaporated Apple Chops.
- No. 1314—Adulteration and Misbranding of Lemon Extract.
- No. 1315—Adulteration of Ice Cream Cones.
- No. 1316—Adulteration of Tomato Catsup.
- No. 1317—Adulteration and Misbranding of Coffee.
- No. 1318—Adulteration of Clams.
- No. 1319—Alleged Misbranding of Mustard.
- No. 1320—Adulteration and Misbranding of "Tomato Pures"; Adulteration of "Tomato Pulp"; Adulteration of "Tomato Catsup".
- No. 1321—Adulteration of Frozen Eggs.
- No. 1322—Misbranding of a Drug Product—"Wood's Soothing Syrup".
- No. 1323—Misbranding of Evaporated Apples.
- No. 1324—Misbranding of Spaghetti and Macaroni.
- No. 1325—Misbranding of Buckwheat Flour.
- No. 1326—Adulteration of Ketchup.
- No. 1327—Misbranding of Maraschino Cherries.
- No. 1328—Adulteration and Misbranding of Corn Meal; Adulteration of Corn Meal.
- No. 1329—Adulteration of Catsup.
- No. 1330—Adulteration of Dried Apples.
- No. 1331—Adulteration of Desiccated Eggs.
- No. 1332—Adulteration and Misbranding of Chocolate.
- No. 1333—Adulteration of Dried Cherries.
- No. 1334—Misbranding of Tomato Catsup.
- No. 1335—Alleged Adulteration of Almond Paste.
- No. 1336—Adulteration of Cheese.
- No. 1337—Adulteration of Oysters.
- No. 1338—Adulteration of Tomato Paste.
- No. 1339—Adulteration and Misbranding of Pink Root.
- No. 1340—Misbranding of Rice.
- No. 1342—Misbranding of Corn Meal.
- No. 1343—Misbranding of Bloaters.
- No. 1344—Misbranding of Cheese.
- No. 1345—Adulteration and Misbranding of Aunt Jemima's Sugar Cream.
- No. 1346—Adulteration of Tomato Ketchup.
- No. 1347—Misbranding of Piccadilly Dry Gin.
- No. 1348—Misbranding of Grape Juice.
- No. 1349—Adulteration and Misbranding of Apple Cider Vinegar.
- No. 1350—Misbranding of German Headache Powder.
- No. 1351—Alleged Misbranding of Candy.
- No. 1352—Adulteration of Catsup.
- No. 1353—Adulteration and Misbranding of Jamaica Ginger Extract.
- No. 1354—Misbranding of Vermouth.

LIST OF COUNTY HEALTH OFFICERS.

County.	Health officer.	Address.
Alameda	Dr. C. L. McKown	Niles
Alpine*	County Recorder Frank Smith	Markleeville
Amador	Dr. E. E. Endicott	Jackson
Butte	Dr. L. Q. Thompson	Gridley
Calaveras	Dr. Irwin B. March	San Andreas
Colusa	Dr. C. A. Poage	Colusa
Contra Costa	Dr. W. S. George	Antioch
Del Norte	Dr. E. M. Fine	Crescent City
El Dorado	Dr. L. M. Leisenring	Placerville
Fresno	Dr. W. T. Burks	Fresno
Glenn	Dr. J. A. Randolph	Willows
Humboldt	Dr. Carl T. Wallace	Eureka
Imperial	Dr. Virgil McCoombs	El Centro
Inyo	Dr. I. J. Woodin	Independence
Kern	Dr. G. M. Bumgarner	Bakersfield
Kings	Dr. Ralph Motherol	Hanford
Lake	Dr. W. E. Upton	Kelseyville
Lassen	Dr. W. E. Dozier	Susanville
Los Angeles	Dr. E. O. Sawyer	Los Angeles
Madera	Dr. Mary R. Butin	Madera
Marin	Dr. J. H. Kuser	Novato
Mariposa	Dr. F. L. Wright	Mariposa
Mendocino	Dr. J. Liftchild	Ukiah
Mercod	Dr. C. H. Castle	Merced
Modoc	Dr. John Stile	Alturas
Mono*	Dr. R. A. Cushman	Bridgeport
Monterey	Dr. Garth Parker	Salinas
Napa	Dr. E. G. Smart	Napa
Nevada	Dr. Carl P. Jones	Grass Valley
Orange	Dr. John Wehrly	Santa Ana
Placer	Dr. O. L. Barton	Loomis
Plumas	Dr. F. D. Walsh	Quincy
Riverside	Dr. George E. Tucker	Riverside
Sacramento	Dr. Hugh Beattie	Elk Grove
San Benito	Dr. J. M. O'Donnell	Hollister
San Bernardino	Dr. Phillip M. Savage	San Bernardino
San Diego	Dr. Nathan Hunt	San Diego
San Francisco	Dr. R. G. Brodrick	San Francisco
San Joaquin	Dr. R. B. Knight	Stockton
San Luis Obispo	Dr. H. M. Cox	San Luis Obispo
San Mateo	Dr. W. G. Beattie	Colma
Santa Barbara	Dr. J. C. Bainbridge	Santa Barbara
Santa Clara	Dr. William Simpson	San Jose
Santa Cruz	Dr. W. R. Congdon	Santa Cruz
Shasta	Dr. F. Stabel	Redding
Sierra	Dr. R. B. Davy	Downieville
Siskiyou	Dr. F. J. McNulty	Yreka
Solano	Dr. S. G. Bransford	Suisun
Sonoma	Dr. P. A. Meneray	Santa Rosa
Stanislaus	Dr. F. R. De Lappe	Modesto
Sutter	Dr. E. V. Jacobs	Meridian
Tehama	Dr. E. E. Thompson	Red Bluff
Trinity	Dr. D. B. Fields	Weaverville
Tulare	Dr. W. A. Preston	Visalia
Tuolumne	Dr. Wm. Lyman Hood	Sonora
Ventura	Dr. A. A. Maulhardt	Oxnard
Yolo	Dr. W. J. Blevins	Woodland
Yuba	Dr. J. H. Barr	Marysville

LIST OF CITY HEALTH OFFICERS.

City.	Health officer.	City.	Health officer.
Alameda	Dr. A. Hieronymus	Burlingame	
Albany	Dr. Robt. Hector	Callistoga	Dr. Henry Abrons
Alhambra	Dr. F. E. Corey	Calexico	Dr. Wm. F. Smith
Alturas	Dr. John Stile	Chico	G. H. Taylor
Alviso		Chino	Dr. John W. Callnon
Anaheim	Dr. J. L. Beebe	Claremont	
Antioch	Dr. W. S. George	Cloverdale	Dr. Cory C. Ledyard
Arcadia		Coalinga	Dr. H. S. Warren
Arcata	Dr. G. W. McKinnon	Colfax	
Arroyo Grande		Colton	Dr. L. A. J. La Motte
Auburn	A. S. Waldo	Colusa	Dr. C. A. Poage
Azusa	Dr. L. W. Atkinson	Compton	J. W. Stone
Bakersfield	S. D. Mullins	Concord	Dr. F. F. Neff
Belvedere	Dr. Florence Scott	Coram	Geo. H. Thomas
Benicia	Dr. W. L. McFarland	Corning	Dr. W. F. Maggard
Berkeley	Dr. J. J. Benton	Corona	Dr. W. H. Chapman
Biggs	Dr. B. Caldwell	Coronado	Dr. Raffaele Lorini
Bishop	Dr. J. W. Shute	Cottonwood	Dr. A. B. Gilliland
Blue Lake	Dr. G. N. Wood	Covina	
Brawley	Dr. L. L. Lindsey	Crescent City	
Burbank		Daly City	

LIST OF CITY HEALTH OFFICERS—Continued.

City	Health officer	City	Health officer
Davis	Dr. W. E. Bates	Pacific Grove	Charles E. Tuck
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Livermore	Dr. H. G. McGill	Santa Paula	Dr. B. E. Murrill
Lodi	Dr. F. W. Colman	Santa Rosa	Dr. Jackson Temple
Long Beach	Dr. W. H. Newman	Santa Maria	Dr. O. P. Paulding
Lompoc		Sausalito	Dr. A. H. Maye
Lordsburg	Dr. J. E. Hubble	Sawtelle	Dr. A. B. Hromadka
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Los Banos	Dr. J. L. McClelland	Sierra Madre	Dr. R. H. Mackerras
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Mayfield	Dr. F. M. Selbert	Suisun	
McCloud	Dr. R. T. Legge	Stanton	
McKittrick	G. M. Chitwood	Sonoma	
Merced	Dr. Brett Davis	Taft	E. G. Wood
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CALIFORNIA STATE BOARD OF HEALTH

Lane Medical Library

MONTHLY BULLETIN

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OCTOBER, 1912

No. 4

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SACRAMENTO, CALIFORNIA
1912

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Division Bacteriologist and Field Officer.....Inverness Building, Sacramento

W. W. CROSS, M.D.

Division Bacteriologist and Field Officer.....Patterson Block, Fresno, California

STANLEY P. BLACK, M.D.

Division Bacteriologist and Field Officer.....Auditorium Building, Los Angeles

REGULAR MEETINGS.

The meetings of the California State Board of Health are held regularly the first Saturday of each month, but the quarterly meetings required by law to be held at the Capitol of the State are ordinarily designated as January, April, July, and October.

By courtesy of the University of California the Food and Drug Laboratory and the Hygienic Laboratory are located in University buildings at Berkeley, California.

Address all communications to the

SECRETARY, Sacramento, Cal.

OCTOBER BULLETIN.

COMMENTS.

An Acknowledgment. In May, 1912, the State Board of Health sent a communication to the Governor and the State Board of Control, stating its need for special information upon recent methods of health administration in England and Germany and several other foreign nations pursuing advanced policies along these lines. An investigation of these problems by the Secretary was approved as a measure in line with a policy of increasing the efficiency of state departments of government.

On the twenty-fifth day of May the Secretary left Sacramento on a series of missions for the Board. In addition to attending the Annual Conference provided by congress, between the Surgeon General of the U. S. Public Health Service and officers of state and territorial boards of health, the Secretary was instructed to attend the Fifteenth International Congress on Hygiene and Demography, and to proceed abroad for the purpose of studying administrative health measures. Incidentally the instructions of the board included attendance upon the meetings of a number of other important public health organizations. The Secretary returned from this trip October 11th.

It is inevitable that the public is more interested in the reports and new ideas which such a delegate brings back from his investigation trip, than it is in how a department carried on its work during his absence. If the work does not go on under such circumstances, there is a demand for an immediate explanation, but in this instance the work did go on, and the Secretary believes the readers of the Bulletin will be interested to know how it was accomplished.

Many citizens suppose that the members of the State Board of Health, like the members of many public boards or commissions, receive some salary or per diem remuneration while in the service of the state. The members of the California State Board of Health receive no salary and no allowance whatever for services rendered the State. Those members who attend board meetings away from their home city are reimbursed for their actual traveling expenses when submitted with proper receipts. This explanation is made in order to emphasize the generosity and interest in the welfare of the work indicated by the decision of the Board members to send their Executive Officer abroad for several months and to distribute his duties among themselves. By far the heaviest portion of this work fell on the shoulders of Dr. James H. Parkinson, who as chairman of the Executive Committee was most familiar with the Secretary's office, and as a resident of Sacramento was most accessible.

The work during the summer proved to be particularly heavy because of the extensive spread of poliomyelitis and the appearance of smallpox and typhoid fever in several communities requiring prolonged investigation. The Secretary considers himself justified under the circumstances in departing from the custom of the Board, which is to do all its work without any public acknowledgment of the individual work of the several members.

Johnny in Trouble Again.

A year ago the following item was published in the Bulletin: "When Johnny Jones enters school this fall his teacher will say: 'Johnny, have you your certificate of vaccination with you?' And Johnny hands over his certificate showing that he has been successfully vaccinated within the past seven years of his young life; and thereupon his troubles with the vaccination law cease. Or, Johnny fails to hand over his certificate, whereupon his troubles begin. For Johnny must then be vaccinated or present a *bona fide* statement from his doctor that he is temporarily not in condition to be vaccinated, or convince his parents that they must go on written record as being conscientiously opposed to vaccination. If he succeeds in securing one of these 'testimonials' he will be permitted to remain in school as long as smallpox stays out of the school district. His 'temporarily-not-in-condition' certificate is void as soon as he recovers from the condition specified by his doctor, and his 'conscientious objection' certificate must be renewed each year. Both are void during the presence of smallpox in the district. The administrative detail of the new law is simple. The teacher collects a certificate from every child and turns these over to the local health officer with a certified list of her enrollment. The health officer goes over these certificates and classifies them according to the three types provided. He makes such investigations as he deems necessary and returns to the teacher for return to their owners the certificates of successful vaccination. Those certificates which he keeps constitute the list of provisional attendants. Upon the appearance of smallpox in the district he will require their withdrawal from school, and, of course, compliance under the general public health act with any other regulations he may consider that the seriousness of the situation warrants."

This law has now been in force for over a year and, like other health laws, has been enforced in some sections and not enforced in others. It has been demonstrated that the law fulfills its purpose in giving the health officer ample information upon which to proceed in controlling outbreaks of smallpox; and where health officers and school authorities coöperate there has been little confusion or time-consuming work connected with its enforcement. This year the work will be still simpler, but "Johnny" will have to get another certificate from his parents, if they still wish to have him remain unvaccinated.

ABSTRACT OF THE PROCEEDINGS OF THE FOURTH ANNUAL CONFERENCE OF STATE, COUNTY, AND MUNICIPAL HEALTH OFFICIALS.

By Professor M. E. JAFFA, Secretary of the Conference.

The Fourth Annual Conference of the State, County, and Municipal Health Officials convened at the University of California, Berkeley, September 23, 1912. The sessions of the League of California Municipalities, held at the same time and place, greatly added to the opportunities of the attending health officials for obtaining special information from sanitary engineers and other municipal experts. The exposition held in the Mining Building, and the large tent adjacent to the same, efficiently and effectively increased the value of this information.

The program of this Conference is here presented:

Program for the Fourth Annual Conference of State, County, and Municipal Health Officials.

Held in Conjunction with the League of California Municipalities, September 23 to 28, inclusive, Entomology Building, University of California, Berkeley.

Rules Governing Papers and Discussions.—Speakers will be limited to fifteen minutes, and those taking part in the discussion will be limited to five minutes. The total time devoted to the discussion of any one subject will be limited to thirty minutes.

MONDAY, SEPTEMBER 23, 1912.

Registration Day. Opening of Public Welfare Exposition.

TUESDAY, SEPTEMBER 24, 1912.

- 9.45 a. m. Roll call.
- 10.00 a. m. Opening address. Dr. Martin Regensburger, President of the California State Board of Health.
- 10.30 a. m. Advances in Public Health Education. Dr. George F. Reinhardt, Professor of Hygiene, University of California.
- Discussion.
- 11.00 a. m. The Bearing of Recent Court Decisions on the Work of the Food and Drugs Laboratory. Professor M. E. Jaffa, Director of the Bureau of Food and Drugs of the California State Board of Health.
- Discussion.
- 11.30 a. m. New Functions of the State Hygienic Laboratory. Dr. W. A. Sawyer, Director of the Bureau of the Hygienic Laboratory of the California State Board of Health.
- Discussion.
- 1.30 p. m. Certification of Milk. Dr. T. C. McCleave, President of the California Association of Medical Milk Commissions.
- 2.00 p. m. Educating the milkman. F. H. McNair, D.V.M., Milk Inspector, City of Berkeley.
- Discussion on milk, opened by Dr. Charles E. Blake, Health Officer of Richmond.
- 2.45 p. m. Demonstration at State Food and Drugs Laboratory. Mr. E. J. Lea, Chemist.
- 3.30 p. m. Demonstration at the State Hygienic Laboratory. Dr. J. C. Gelger, Chief Bacteriologist.
- 4.15 p. m. Demonstration of the Certified Dairy of the University of California. C. L. Roadhouse, D.V.M., Instructor in Veterinary Science and Manager of the Dairy.
- 4.45 p. m. Demonstration of the Infirmary of the University of California. Albert M. Meads, M.D., Infirmary Physician.
- 8.00 p. m. The Suppression of the White Slave Traffic and the Control of Venereal Diseases. Hon. Clayton Herrington, Bureau of Investigation, Customs House, San Francisco.

Joint meeting with the League of California Municipalities.

WEDNESDAY, SEPTEMBER 25, 1912.

- 9.00 a. m. The Health Officer's Responsibility in a Case of Diphtheria. Dr. R. G. Broderick, Health Officer of San Francisco.
- Discussion. Dr. George H. Aiken, Health Officer of Fresno.
- 9.30 a. m. Sanitaria and Camps for the Tuberculous. Dr. Robert A. Peers, of Colfax.
- 9.45 a. m. Progress of the State and National Tuberculosis Societies. Dr. George E. Tucker, Secretary of the California Tuberculosis Society.
- Discussion on Tuberculosis opened by Dr. F. W. Browning, Health Officer of Eden Township, Hayward.
- 10.15 a. m. Visit to the Cutter Analytic Laboratory. Demonstration of the methods to 12. of manufacture of biological products.
- 1.30 p. m. The Epidemiology of Typhoid. Dr. James H. Parkinson, Member of the California State Board of Health.
- Discussion on Typhoid opened by Dr. C. A. Poage, Health Officer of Colusa County.
- 2.15 p. m. Acute Poliomyelitis in California. Dr. F. F. Gundrum, Northern Branch of the State Hygienic Laboratory, Sacramento.
- Discussion opened by Mr. H. C. Jenkins, Health Officer of Palo Alto, California.
- 2.45 p. m. The Epidemiology and Control of Scarlet Fever, Measles and Chicken Pox. Dr. William Simpson, Health Officer of Santa Clara County.
- Discussion opened by Dr. Mary R. Butin, Health Officer of Madera County.
- 3.15 p. m. The Results of Personal Experiences in Controlling Smallpox. Dr. Arthur O'Neill, Resident Physician Contagious Disease Hospital, San Francisco.

- 3.45 p. m. Successful Methods of Attack on Malaria. Mr. W. B. Herms, Assistant Professor of Applied Parasitology, University of California.
- 4.15 p. m. Disinfection and Vaccination in the Control of Typhoid Fever. Dr. John G. Fitzgerald, Assistant Professor of Bacteriology, University of California.
- THURSDAY, SEPTEMBER 26, 1912.
- 9.00 a. m. Hookworm Disease in California. Dr. Herbert Gunn, City Physician of San Francisco.
Discussion opened by Dr. E. E. Endicott, Health Officer of Amador County.
- 9.45 a. m. The Rabies Epizootic in San Francisco. Dr. W. H. Kellogg, Director of Laboratories, San Francisco Board of Health.
Discussion opened by Dr. J. J. Benton, Health Officer of Berkeley.
- 10.30 a. m. The Steps Necessary for the Complete Eradication of Plague from California. Passed Assistant Surgeon J. D. Long, U. S. P. H. and M. H. Service.
Discussion opened by Dr. Martin Regensburger, President of the California State Board of Health.
- 11.15 a. m. The Driving-of Venereal Diseases from the Large Cities into Unprotected Communities. Dr. Martin Regensburger, President of the California State Board of Health.
Discussion opened by Dr. George E. Tucker, Health Officer of Riverside County.
- 11.30 a. m. Isolation vs. Quarantine. Dr. Wm. K. Lindsay, Health Officer of Sacramento.
Discussion opened by Dr. M. W. Glover, Passed Assistant Surgeon in command of San Francisco Quarantine Station.
- 1.30 p. m. The Commercial Exploitation of Disinfectants and Fumigants. Dr. Wilbur A. Sawyer, Director of the Bureau of the Hygienic Laboratory of the California State Board of Health.
Discussion opened by Dr. George E. Tucker, Health Officer of Riverside.
- 2.00 p. m. Safety Protection of the Laborer. Mr. Aaron L. Sapiro, Secretary of the Industrial Accident Board of California.
Discussion opened by Dr. R. G. Broderick, Health Officer of San Francisco.
- 2.45 p. m. Housing Problems. Miss Jessica B. Peixotto, Assistant Professor of Sociology, University of California.
Discussion opened by Miss Alice P. Griffiths, Secretary of the San Francisco Housing Association.
- 3.15 p. m. School Inspection. Miss A. F. Brown, School Director of Oakland.
- 3.45 p. m. Outdoor Schools. Dr. N. K. Foster, Medical Director of Schools, Oakland.
- 8.00 p. m. The Consumer and the Food and Drugs Acts. Professor M. E. Jaffa, Director of the Bureau of the Food and Drugs Laboratory of the California State Board of Health.

FRIDAY, SEPTEMBER 27, 1912.

- 9.00 a. m. to 5.00 p. m. Trip by boat to Angel Island Quarantine and Immigration Stations, and other points of Hygienic interest on San Francisco Bay. Full details to be announced Thursday afternoon.

SATURDAY, SEPTEMBER 28, 1912.

Tour of inspection of bay cities with the Municipal League.

Monday, as indicated on the program, was devoted to registration and visiting the Public Welfare Exposition. The exposition will be fully described later on in the proceedings.

In the absence of Dr. Regensburger, who was prevented from attending on account of sickness, the Conference was called to order by Dr. W. A. Sawyer, at 10.00 a. m. Tuesday, September 24. Delegates, as noted in the appended list, from thirty-five towns and counties responded to the roll call. A much larger number of health officials would have been in attendance had it not been for the Fifteenth International Congress on Hygiene and Demography, which convened in Washington on the same dates as set for this Conference.

Dr. Sawyer, with a few fitting remarks, welcomed the delegates to Berkeley and opened the Conference.

The paper entitled "Advances in Public Health Education" was read by Dr. G. F. Reinhardt, Professor of Hygiene, University of California. This interesting and instructive paper brought about a very animated discussion, which was opened by Dr. Corey, followed by Dr. Kuser, Dr. Lindsay, Mrs. Cleveland, Dr. Simpson, and Dr. Benton. The discussion was closed by Dr. Reinhardt.

The next paper was that by Professor Jaffa entitled "The Bearing of Recent Court Decisions on the Work of the Food and Drugs Laboratory." The discussion of this paper was opened by Dr. Hieronymus, followed by Dr. Browning, Dr. Simpson, and

Mr. Chester Hoyt. At the close of the discussion the following motion by Dr. Simpson, seconded by Dr. Browning, was unanimously carried:

"It is the sense of the Fourth Annual Conference of State, County, and Municipal Health Officials that at the coming legislature an act be passed amending the California Food and Drugs Act to conform to the National Food and Drugs Act, with special reference to the statements of curative properties appearing on the label of drugs.

It is further the sense of this conference that as additional protection to the consumer, an act be passed regarding as a violation of the Food and Drugs Act false and misleading statements with reference to foods or drugs appearing in newspapers, periodicals, circulars or other printed matter."

Dr. Sawyer followed with a short address on the "New Functions of the State Hygienic Laboratory." In his remarks he described the new kinds of work which the laboratory had begun since the meeting of the year before. The laboratory had undertaken, first the administration and distribution of antirabic virus furnished by the United States Public Health and Marine Hospital Service, and later the manufacture of the virus used by the State Board of Health in giving the Pasteur treatment. The delegates were invited to visit the Pasteur Institute and to see the equipment for this work. Another new function was the testing of disinfectants for their power to kill bacteria. This has been for the State Board of Control, and in some instances for health officials. This work ought to be increased, in order to diminish fraud in the sale of disinfectants. The diagnostic work which was the chief function of the laboratory before the year just ended, had increased during the past year and the examination for rabies had become a most important part of the laboratory work.

The discussion of this address indicated the great interest which the Health Officials take in the work of the State Hygienic Laboratory, and also their appreciation of the help and assistance to them of the Laboratory. This was especially noticed by the remarks of Dr. Lindsay, Dr. Chase, Dr. Blake, Dr. Heironymus, and Dr. Browning. Dr. Sawyer closed the discussion, answering all questions that had been asked concerning disinfectants, the examination of dogs' heads for rabies, and directions for sending dogs' heads to the laboratory.

The afternoon session was called to order at 1.30 by Dr. Sawyer.

Dr. McCleave delivered an address on the "Certification of Milk." This was followed by Dr. McNair with a paper on "Educating the Milkman." The two papers were ably and animatedly discussed by Dr. Blake and Dr. Tucker, the latter gentleman indicating the necessity for uniform methods for scoring dairies, creameries, etc. According to the present practice a creamery may be given a certain scoring by one inspector and later on an entirely different scoring by another inspector, these differences being due very largely to a non-uniform method of scoring. There are at present three different sets of inspectors, the State, County, and the City.

Mr. F. W. Andreason, Secretary of the State Dairy Bureau, took part in the discussion and very cordially indicated the willingness of the State Dairy Bureau to help the Health Officials in this matter. Dr. Chase and Dr. Kuser spoke to the question and agreed with Dr. Tucker in that there should be a uniform method of scoring. Dr. McNair closed the discussion, after which the following resolution, introduced by Dr. Tucker, was unanimously adopted:

WHEREAS it is apparent that much difference of opinion exists among health workers as to what measures should be recommended to dairymen to insure a clean and wholesome 'market milk' supply; therefore, be it

Resolved, That the chairman of this conference appoint a representative to coöperate with appointed members from other organizations, the purpose of the committee of the whole to make recommendations for uniform regulation of dairies, for legislative enactment governing dairies, methods of scoring, etc. It is further recommended by this conference that the State Veterinarians' Association, the State Dairy Bureau, the State Medical Milk Commissions, and the State Dairymen's Association be asked to make similar appointments and be notified of this action."

This resolution was unanimously carried, to the effect that the committee as indicated in the above should coöperate with the State Board of Health, which already has a committee carrying on somewhat similar work, but after reconsideration this was amended, the following day, to read:

"That a representative from each of the following organizations—the State

Veterinarians' Association, the State Dairy Bureau, the State Federation of Medical Milk Commissions, and the State Dairymen's Association—be invited to participate in the deliberations of the sub-committee on milk ordinances of the committee of fifteen of the State Board of Health."

Wednesday morning the meeting was called to order by Dr. Sawyer at 9.00 o'clock. Owing to the fact that Dr. Broderick was detained by official business in San Francisco, Dr. Peers read the paper on "Sanitaria and Camps for the Tuberculous." The discussion was opened by Dr. Browning, who complimented Dr. Peers on his paper and emphasized the necessity of properly and intelligently educating the public. Dr. Browning was followed by Dr. Tucker, Dr. Paulding, Dr. Benton, Dr. Corey, Mr. Draper, and Dr. Peers. The large number taking part in the discussion indicates the interest taken in the subject.

At 10.30, through the courtesy of the physicians of Berkeley, the delegates were taken in automobiles to the Cutter Laboratory, Berkeley. They were shown, there, the methods of preparing various biological products of public health interest. The care and precaution taken in preparing diphtheria antitoxin, smallpox vaccine, bacterial vaccines, and tuberculins were demonstrated. After visiting the main laboratory the party inspected the isolated department for the manufacture of a serum against tetanus. At the conclusion of the visit the delegates returned to their headquarters.

Wednesday afternoon the meeting opened with a paper by Dr. Broderick entitled "The Health Officer's Responsibility in a Case of Diphtheria." This paper emphasized the importance of carriers and suggested that a motion be made to the effect that the legislature be asked to pass a specific law so that antitoxin could be furnished free to the poor. The following took part in the interesting discussion which followed the paper: Dr. Corey, Dr. Lindsay, Dr. Warren, Dr. Peers, Dr. Wehrly, and Dr. Sawyer. Dr. Broderick closed the discussion, and answered all questions asked concerning this subject.

It was moved and unanimously carried, upon the motion of Dr. Peers, seconded by Dr. Bathurst, that the legislature be asked to pass a law which would allow free antitoxin to be furnished to the indigent.

Dr. Gundrum followed this interesting discussion by an address on "Acute Poliomyelitis in California," a subject of vital interest to all the medical profession. The discussion was opened by Dr. Broderick in the absence of Mr. Jenkins, who was attending the Hygienic Congress in Washington. Mr. Draper also took part in this discussion. Dr. Gundrum, in a few timely remarks, closed the discussion.

The next paper, on "The Epidemiology and Control of Scarlet Fever, Measles, and Chicken Pox," was read by Dr. Simpson. Dr. Mary Butin opened the discussion, followed by Dr. Lindsay and by Dr. Simpson, who concluded it.

At this point of the program Dr. James H. Parkinson, Secretary *pro tem.* of the State Board of Health, arrived and took the chair.

Dr. O'Neill's paper on "The Results of Personal Experiences in Controlling Smallpox" was received with much attention, and this was emphasized by the discussion which took place after the reading of the paper, and participated in by Dr. Hieronymus, Dr. Broderick, Dr. Chase, Dr. Peers, and Dr. Wilson.

Professor W. B. Herms, of the University of California, delivered a very instructive address, illustrated by lantern slides, on "Successful Methods of Attack on Malaria." The illustrations and explanations were so full and complete that no discussion appeared to be necessary.

The paper by Dr. Fitzgerald on "Disinfection and Vaccination in the Control of Typhoid Fever," was the last on the program and very instructive to the health officials. A very fruitful discussion was participated in by Dr. Bathurst, Dr. Gundrum, Dr. Peers, and Dr. Tucker. Dr. Fitzgerald closed with a few remarks which answered different questions that had been propounded in the discussion.

At this point of the program the resolution passed on Tuesday with reference to milk ordinances was reconsidered, amended, and carried as indicated in the proceedings of Tuesday.

The session was opened Thursday morning with Dr. W. A. Sawyer in the chair.

The first paper was by Dr. Tucker, entitled "Progress of the State and National Tuberculosis Societies." This paper, in accordance with the program, should have been presented on Wednesday morning, but owing to the delay in the mails the reading was postponed. Dr. Tucker was listened to with the closest of attention, and the importance of the subject was indicated very forcefully by an animated discussion which followed, and which was participated in by the following: Dr. Hieronymus, Dr. Lindsay, Dr. Wehrly, Dr. Sherman, Mr. Draper, and Dr. Sawyer. Dr. Tucker, in a few timely remarks, answered all the inquiries and closed the discussion.

Dr. Kellogg's paper on "The Rabies Epizootic in San Francisco" was of great value to those present. He briefly gave the history of rabies in San Francisco, and an account of the measures for treating cases and suppressing the epidemic. The discussion was opened by Dr. Tucker, and after him came Dr. Lindsay, Mr. Draper, Dr. Kuser, and Dr. Hieronymus. Dr. Kellogg in concluding remarks gave some suggestions regarding the type of muzzles for dogs and indicated a preference for the basket form of wire muzzle, as that was most comfortable for the dogs and afforded ample protection.

Dr. J. D. Long delivered a most interesting address on "The Steps Necessary for the Complete Eradication of Plague from California." In the absence of Dr. Regensburger, who was still confined at his home by sickness, Dr. Tucker was the first gentleman to take part in the discussion. Dr. Hieronymus, Dr. Lindsay, and Mr. Draper also voiced their sentiments in connection with the remarks of Dr. Long. Dr. Long, in his closing remarks, replied to the different queries advanced. He stated that the Bureau of the Biological Department of the United States Department of Agriculture had some money, but the appropriation was very small. They hoped that more money would be appropriated for their work by congress in December. With reference to the railroads, he said that the act of March 13, 1909, can apply to railroad companies as well as to private people. He further stated that it was very necessary for the state and the county to coöperate with the Federal Government, as that was the only way in which to get the best results. The Federal officials were more than ready to coöperate in every possible way for the extermination of the squirrels. The gophers, Dr. Long intimated, are immune, and therefore they are eliminated from the investigation as not being susceptible to plague. In answer to the statement that was made that quail would eat the poisoned grain, it was stated that only unhusked barley was used and that the birds do not eat that form of grain, they only eat it when the husk is off. In reply to the question how much strychnine was necessary, Dr. Long said that one ounce of strychnine to twenty pounds of barley was sufficient. The whole was mixed with a little starch paste and some saccharin for sweetening purposes. Dr. Long emphasized the value of the machine now in use by the government, from the standpoint or both economy and efficiency, for killing squirrels by means of bisulphid of carbon, and remarked that the price of the machine was \$12.00, made by the California Sheet Metal Works, San Francisco.

The fourth paper of the morning was on "Isolation versus Quarantine," read by Dr. W. K. Lindsay. This vital subject was very ably treated and resulted in a most profitable discussion, opened by Dr. Glover and followed by Dr. Browning, Dr. Hieronymus, Dr. Simpson, and Dr. Peers, several of these gentlemen talking more than once on this subject, indicating the interest taken. In connection with this subject it was moved by Dr. Hieronymus, and seconded by Dr. Simpson, that in a family where there exists a case of measles or German measles which is isolated, all children over ten years of age should be allowed to attend school. Upon discussion this motion was amended by Dr. Browning and the amendment accepted by Dr. Hieronymus. The amended motion, which was unanimously carried, reads as follows:

"It is the sense of the Fourth Annual Conference of Health Officials that in a family where there exists a case of measles which is isolated, all children over ten years of age should be allowed to attend school. It is further recommended that this matter be referred to the Committee of Fifteen of the State Board of Health."

The last paper of the forenoon was that of Dr. H. Gunn, "Hookworm Disease in California." Dr. Gunn, owing to unavoidable detention in San Francisco, could not be present at the Conference before late in the forenoon. The paper on the hookworm was one of the most instructive presented before the Conference, and provoked discussion which was of benefit and value to all present. Those participating in the discussion were Dr. Endicott, Dr. Blake, Dr. Browning, and Dr. Simpson. Dr. Blake, in his remarks, said that there was no hookworm in the Hawaiian Islands before the annexation to the United States. There was some beri-beri, however. After annexation and the influx of a large number of Europeans the hookworm appeared. The subject was of such interest that the following motion was unanimously carried:

"It is the sense of the Fourth Annual Conference of State, County, and Municipal Health Officials that the hookworm disease has become a serious menace, and that steps should be taken to investigate the cause and to check the further spread of the disease, and that the Governor of this State be requested to appoint a commission from the interested organizations, to serve *without pay towards this end.*"

The Conference was opened at 1.30 p. m., with Dr. Sawyer in the chair, the first paper being read by Dr. Donald Currie, on "The Commercial Exploitation of Disinfectants and Fumigants." It will be noticed from the program that this paper was assigned to Dr. Sawyer, but this assignment was due to Dr. Currie's being absent from the State when the program was being made out, but after the same had gone to print Dr. Currie returned and signified his willingness to read the paper. Dr. Sawyer, therefore, courteously withdrew in Dr. Currie's favor. The discussion was opened by Dr. Sawyer, who was followed by Dr. Broderick, Dr. Blake, Dr. Kuser, and Mr. Draper. Dr. Currie closed the discussion with a few fitting remarks.

Upon motion of Dr. Blake, seconded by Dr. Lindsay, the following motion was passed:

"It is the sense of the Fourth Annual Conference of State, County, and Municipal Health Officials, that at the coming session of the legislature an act be passed requiring manufacturers of disinfectants to state on label in figures the strength of their preparations in terms of the Hygienic Laboratory, phenol coefficient, and also that the legislature provide, at a State Laboratory, the means for the examination of samples for the purpose of detecting false or misleading statements, in any particular, appearing on such samples of disinfectants."

Mr. Aaron Sapiro, Secretary of the Industrial Accident Board of California, gave a very instructive account of the object and purpose of the Accident Board, and his address was the means of bringing about a very pertinent discussion, which was participated in by Dr. Broderick, Dr. Poag, and some visitors to the Conference. Mr. Sapiro closed the discussion and indicated that they would ask for a larger appropriation at the coming session of the legislature, so as to be able to remunerate health officials for their work in compiling reports to be sent to the Industrial Board.

Dr. Jessica Peixotto, of the University of California, addressed the Conference on "Housing Problems." Her remarks were listened to with the closest attention, and the discussion which took place after the conclusion of Dr. Peixotto's address showed the keen interest which was taken by the health officials in this connection. Those speaking to the subject were Dr. Broderick, Dr. Simpson, Dr. Lindsay, and Dr. Corey. It was stated by those participating in the discussion that they considered Dr. Peixotto's one of the important, if not the most important, discussions of the sessions.

As a result of the discussion the following motion was presented and unanimously carried:

"It is the sense of the Fourth Annual Conference of State, County, and Municipal Health Officials that the State Board of Health be requested to ascertain to what extent the state tenement law is enforced, and furthermore, to compel the uniform enforcement of the law in all parts of the State."

Dr. Peixotto ably closed the discussion.

Miss A. F. Brown, School Director of Oakland, favored the Conference with a highly interesting paper on "School Inspection."

Dr. Foster followed with a very valuable talk on the subject of "Outdoor Schools." Owing to the Doctor's extended experience in this matter his talk was rendered much more forceful.

The discussion on these two papers was opened by Dr. Currie, and participated in by Dr. Simpson, Dr. Blake, and visitors to the Conference. This ended the program for the afternoon.

Upon motion of Dr. Simpson, seconded by Dr. Lindsay, a vote of thanks was tendered to Dr. Sawyer and Prof. M. E. Jaffa, and the members of the University staff who took part in the program, for their efforts in helping to make this a successful meeting.

It was further moved and seconded by Dr. Blake as follows:

"It is the sense of the Fourth Annual Conference of State, County, and Municipal Health Officials that the annual meeting for 1913 be held at Venice."

These two motions were unanimously carried.

Thursday evening a lecture was delivered by Prof. M. E. Jaffa, in the new assembly hall, Chemistry Building, on "The Consumer and the Food and Drugs Act."

Friday morning, in accordance with the program, the delegates, owing to the courtesy of Dr. M. W. Glover of the United States Quarantine Station, were treated to a trip around San Francisco Bay on the government boat "Argonaut." The boat started from Mission-street Wharf at 10.00 a. m. Friday morning and proceeded

along the water front, affording the guests and delegates an opportunity of viewing the World's Fair site. The boat then passed out Golden Gate and cruised southward until opposite Seal Rock, giving an excellent view of the city. Point Bonita was next visited. The boat followed the north shore back through the Golden Gate, and after passing Sausalito approached the quarantine station, where a landing was made. Dr. Glover very kindly piloted the delegates, their wives and friends to the number of forty-one, through the quarantine station, showing them the quarters, arrangements for examining and bathing persons under quarantine, and also the facilities for fumigation on a large scale. At 1.00 o'clock a luncheon was served on board. The boat then cruised up the bay, permitting the delegates to view San Quentin. When near Red Rock the return was made to Angel Island, near the southern end of the bay. This permitted a view of the Standard Oil Company's large plant, and also Winehaven, the largest winery in the world, and also the city of Richmond. The boat then approached Angel Island from the eastern side and landed at the Immigration Station. Dr. Glover and some of the other physicians of the station took the party through the buildings in two sections. The detention buildings, the large main building, and the hospital were visited. The boat left the station at 3.15 and reached San Francisco at 4.00 o'clock. The delegates seemed to enjoy the trip exceedingly, and expressed their thanks to Dr. Glover of the Public Health Service, and to the State Board of Health for making this trip possible.

In accordance with the program those delegates who were fortunate enough not to have to leave for home were well entertained by taking part in the tour of inspection of the bay cities under the auspices of the Municipal League.

The Conference as a whole was very successful. This is emphasized by the number of excellent, high-grade papers presented, the interest and attention shown throughout the Conference, and again, by the animated and profitable discussion which followed each and every paper. The value of the Conference was further indicated by the large attendance of students of the University and visitors in general.

The general food exhibit held at the Mining Building during the time of the Conference was under the general supervision of the Director of the State Laboratory, in accordance with the request of the California League and with the sanction of the State Board of Health. This exposition was of great educational value, in that there was an attempt to control to a very large extent, intemperate advertising appearing on printed matter distributed in connection with food products. It is to be hoped that the movement so started will continue and be the means of eliminating from the market all such intemperate advertising—in other words, let the label and accompanying literature tell the truth, the whole truth, and nothing but the truth.

LIST OF HEALTH OFFICIALS ATTENDING CONFERENCE.

Dr. Mary R. Butin, Madera; Dr. J. H. Kuser, Novato; Dr. John Wehrly, Santa Ana; Dr. George E. Tucker, Riverside; Dr. William Simpson, San José; Dr. E. E. Thompson, Red Bluff; Dr. W. A. Preston, Visalia; Dr. A. A. Maulhardt, Oxnard; Dr. A. Heironymus, Alameda; Dr. F. E. Corey, Alhambra; Dr. J. J. Benton, Berkeley; Dr. H. S. Warren, Coalinga; Dr. R. A. Peers, Colfax; Dr. F. F. Neff, Concord; Dr. C. H. Phinney, Eagle Rock; Dr. E. W. Bathurst, Etna Mills; Dr. R. E. Chase, Glendale; Dr. F. W. Browning, Hayward; Dr. H. A. Putnam, Inglewood; Dr. F. W. Colman, Lodi; Dr. J. E. Hubble, Lordsburg; Mr. J. B. Draper, Ontario; Dr. T. J. Wilson, Pnomma; Dr. J. L. Ross, Redwood City; Dr. Chas. R. Blake, Richmond; Dr. Thos. R. Griffiths, Riverside; Dr. Wm. K. Lindsay, Sacramento; Dr. R. G. Broderick, San Francisco; Dr. W. F. Jones, San Rafael; Dr. O. P. Paulding, Santa Maria; Mrs. W. J. Shepard, Ventura; Dr. L. E. McCabe, Visalia; Dr. F. F. Gundrum, Sacramento; Dr. W. M. Kendall, Ocean Park; Dr. H. N. Miner, Berkeley; Dr. M. W. Glover, San Francisco; Mr. H. F. Gray, Berkeley; Dr. T. C. McCleave, Berkeley; Dr. F. H. McNair, Berkeley; Dr. G. F. Reinhardt, Berkeley; Dr. W. A. Sawyer, Berkeley; Mr. M. E. Jaffa, Berkeley.

THE FIFTEENTH INTERNATIONAL CONGRESS ON HYGIENE AND DEMOGRAPHY.

By WILLIAM F. SNOW, Secretary.

The Fifteenth International Congress on Hygiene and Demography was held in Washington, D. C., September 23d to 28th, 1912. Twenty-eight nations were officially represented by delegates. Within the United States nearly all the states were represented by delegates. California had representatives from most of the large cities.

This congress meets generally once every five years, and attracts all the prominent public health and preventive medicine workers from the entire world. There were nearly 4,000 members registered, and probably at least 5,000 persons regularly in attendance during the session. Every phase of preventive medicine was represented in the section programs and in the remarkable exhibit of models, statistical charts, photographs, specimens, and literature. This exhibit was divided into the following groups:

- Group I. Vital Statistics and Demography.
- Group II. Growth and Nutrition; Food.
- Group III. The Hygiene of Infancy and Childhood (including School Hygiene and Prevention of Infant Mortality).
- Group IV. The Physiology and Hygiene of Exercise.
- Group V. Housing.
- Group VI. Industrial and Occupational Hygiene.
- Group VII. Communicable Disease.
- Group VIII. State and Municipal Hygiene.
- Group IX. Care of the Sick; Life Saving.
- Group X. Hygiene of Traffic and Transportation.
- Group XI. Military, Naval, and Tropical Hygiene.
- Group XII. Sex Hygiene.
- Group XIII. Mental Hygiene.

No description can adequately picture the interesting and convincing demonstration of preventive medicine which this great exhibit presented. Dr. Schereschewsky, of the U. S. Public Health Service, deserves the greatest praise for the assembling of this important part of the congress material. California's chief exhibit was the "Sanitation Car." It was through the generosity of the Southern Pacific Company that the car and demonstrators were sent on a 7000-mile journey to participate in this exhibit. The interest shown by delegates and members of the congress fully warranted the sending of this exhibit.

The scientific sessions of the congress were presided over by Dr. H. P. Walcott, President of the Massachusetts State Board of Health, and were opened by President Taft in a stirring speech, based largely upon his personal experience as an administrative officer in tropical countries and upon such signal triumphs of preventive medicine as the sanitation of the Panama Canal zone. The papers presented were grouped under the section headings given below. Dr. John S. Fulton, Secretary-General of the Congress, and his able Lieutenant, Professor Selskar M. Gunn, of the Massachusetts Institute of Technology, were *responsible* for the success and management of the details of the *scientific program*.

The two main divisions of the Congress were divided as follows:

DIVISION I.—HYGIENE.

- Section I. Hygienic Microbiology and Parasitology.
- Section II. Dietetic Hygiene; Hygienic Physiology.
- Section III. Hygiene of Infancy and Childhood. School Hygiene.
- Section IIIa. Subsection on Mental Hygiene.
- Section IV. Hygiene of Occupations.
- Section V. Control of Infectious Diseases.
- Section VI. State and Municipal Hygiene.
- Section VIa. Subsection on Sex Hygiene.
- Section VII. Hygiene of Traffic and Transportation.
- Section VIII. Military, Naval, and Tropical (Colonial) Hygiene.

DIVISION II.—DEMOGRAPHY.

- Section IX. Demography.

The limits of space in the bulletin do not permit any resumé of the valuable papers presented during the congress. The following announcement should be taken advantage of by all interested persons who are not already enrolled as members of the Congress and therefore entitled to the proceedings when printed:

ANSWERING NUMEROUS INQUIRIES CONCERNING THE TRANSACTIONS OF THE INTERNATIONAL CONGRESS OF HYGIENE AND DEMOGRAPHY.

The Transactions will be complete in about 4,000 printed pages. The number of copies will correspond to the number of advance subscriptions.

The price is \$5.00 a set, delivered. There will be no distribution through book-sellers.

Subscriptions cannot be received after the first volume goes to press.

Subscriptions should be sent without delay to

JOHN S. FULTON, Secretary-General,
New Jersey avenue and B street, N. W., Washington, D. C.

REPORT OF BUREAU OF ADMINISTRATION.

JOHN F. LEINEN, Director.

Executive Division.

The following table will give some idea as to the amount of executive work handled by the Bureau during September, 1912:

Items.	Total.	No. of Subjects.	Adminis- tration.	Mor- bidity.	Infor- mation Bureau.	Miscel- laneous.
Letters received	1,945	180	725	500	460	260
Letters sent	2,030	180	730	595	420	285
Circular letters sent.....	624	2	312	312	-----	-----
Report blanks sent.....	1,805	10	145	1,500	160	-----
Reports received	1,413	15	145	1,020	248	-----
Press clippings, bulletins, and newspapers received	1,430	25	250	820	260	100
Accounts audited	145	-----	19	-----	126	-----
Estimates approved, items.....	144	-----	18	-----	126	-----
Checks issued	38	-----	11	-----	27	-----
Miscellaneous letters advising local health officers and com- munities	162	20	64	89	9	-----

Division of Morbidity Returns.
Morbidity Report for September, 1912.

Disease.	Cases.	Plases.
Poliomyelitis	37	12
Smallpox	29	9
Diphtheria	129	24
Typhoid	86	16
Scarlet fever	45	13
Pneumonia	34	2
Tuberculosis	129	14
Whooping-cough	26	3
Chickenpox	17	7
Gonorrhea	2	2
Syphilis	2	1
Mumps	57	7
Malaria	7	1
Influenza	7	1
Measles	7	4
Frysipelas	3	2
Scabies	3	2
Impetigo	1	1
Urticaria	1	1
Tetanus	1	1
Totals	623	123

REPORT OF BUREAU OF VITAL STATISTICS.

GEORGE D. LESLIE, Director.

Work has been continued on the biennial report for 1910-11, in addition to the usual work of the bureau's staff.

August Statistical Tables.

The statistical summaries for the Vital Statistics of Records of August, 1912, will be found in the Bulletin for October; the statistics for the current month, September, can not be collected and tabulated for printing before the November issue, and will be in that number of this Bulletin.

STATISTICAL SUMMARIES FOR AUGUST, 1912.

State Totals and Annual Rates.—The following table shows for California as a whole the birth, death, and marriage totals for the current and preceding months in comparison with those for the corresponding months of last year, as well as the annual rates per 1,000 population represented by the totals for the current and preceding months. The rates are based on an estimated midyear population of 2,579,874 for California in 1912, the estimate having been made by the Census Bureau method with slight modifications.

Birth, Death, and Marriage Totals, with Annual Rates per 1,000 Population for Current and Preceding Months for California: August.

Month.	MONTHLY TOTAL		Annual rate per 1,000 population: 1912.
	1912.	1911.	
August—			
Births	3,288	3,129	15.0
Deaths	2,710	2,577	12.4
Marriages	2,619	2,303	12.0
July—			
Births	3,366	3,003	15.4
Deaths	2,982	2,591	13.6
Marriages	2,786	2,365	12.3

The birth, death, and marriage totals for August, as for preceding months, were much greater in 1912 than in 1911. The birth registration has been much greater each month this year than in the corresponding month of last year.

County Totals.—The first of the following tables shows the monthly birth, death, and marriage totals for the principal counties of the State, the list being limited to counties having a population of at least 25,000 according to the Federal Census of 1910. Totals are also shown for San Francisco and for the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), as well as for Los Angeles and Orange counties together.

City Totals.—The second table which follows below gives the birth and death totals for the principal freeholders' charter cities, the list including all chartered cities with a census population of at least 15,000 in 1910. Totals are given likewise for San Francisco in comparison with Oakland, Alameda, and Berkeley, the three cities adjoining one another on the east shore of San Francisco Bay, as well as for Los Angeles in comparison with neighboring chartered cities (Long Beach, Pasadena, Pomona, and Santa Monica).

Birth, Death, and Marriage Totals, for Principal Counties: August.

County.	August, 1912.		
	Births.	Deaths.	Marriages.
California	3,288	2,710	2,619
Counties of more than 25,000 population (1910):			
Alameda	294	255	222
Butte	38	24	22
Contra Costa	46	27	19
Fresno	131	75	72
Humboldt	47	32	29
Kern	37	39	38
Los Angeles	873	670	630
Marin	14	33	96
Orange	59	36	129
Riverside	47	34	41
Sacramento	113	96	89
San Bernardino	78	80	46
San Diego	119	99	89
San Francisco	575	498	553
San Joaquin	39	65	35
San Mateo	42	22	46
Santa Barbara	33	30	34
Santa Clara	106	79	83
Santa Cruz	21	32	19
Solano	30	36	14
Sonoma	51	58	41
Tulare	60	27	19
Selected groups:			
San Francisco and other bay counties.....	971	835	936
Los Angeles and Orange counties.....	932	706	759

Birth and Death Totals, for Principal Cities: August.

City.	August, 1912.	
	Births.	Deaths.
Freeholders' charter cities.....	2,032	1,616
Cities of more than 15,000 population (1910):		
Alameda	25	29
Berkeley	46	40
Fresno	48	20
Long Beach	32	22
Los Angeles	597	410
Oakland	202	142
Pasadena	46	36
Riverside	29	16
Sacramento	92	80
San Diego	85	76
San Francisco	575	498
San Jose	47	20
Stockton	16	31
Selected groups:		
San Francisco	575	498
Oakland, Alameda and Berkeley.....	273	211
Total, Bay cities.....	848	709
Los Angeles	597	410
Neighboring cities	92	91
Total	689	501

Causes of Death.—The following table shows the classification of deaths in California for the current month, in comparison with the preceding month:

Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths, for Current and Preceding Month, for California: August.

Cause of death.	Deaths: August	Proportion per 1,000.	
		August	July.
ALL CAUSES.....	2,710	1,000.0	1,000.0
Typhoid fever	59	21.8	18.4
Malarial fever	8	2.9	3.7
Smallpox	6	2.2	1.3
Measles	8	2.9	4.0
Scarlet fever	1	0.4	0.3
Whooping-cough	29	10.7	11.1
Diphtheria and croup.....	7	2.6	3.7
Influenza	3	1.1	0.7
Other epidemic diseases.....	10	3.7	8.4
Tuberculosis of lungs.....	311	114.7	105.0
Tuberculosis of other organs.....	75	27.7	20.5
Cancer	188	69.4	65.4
Other general diseases.....	127	46.9	42.6
Meningitis	21	7.7	9.4
Other diseases of nervous system.....	227	83.8	89.9
Diseases of circulatory system.....	443	163.5	164.3
Pneumonia and broncho-pneumonia.....	122	45.0	48.0
Other diseases of respiratory system.....	45	16.6	19.1
Diarrhea and enteritis, under 2 years.....	129	47.6	48.3
Diarrhea and enteritis, 2 years and over.....	28	10.3	11.4
Other diseases of digestive system.....	149	55.0	46.9
Bright's disease and nephritis.....	150	55.4	59.0
Childbirth	27	10.0	9.4
Diseases of early infancy.....	116	42.8	40.9
Suicide	57	21.0	22.8
Other violence	252	93.0	98.9
All other causes.....	112	41.3	43.8

In August there were 443 deaths, or 16.4 per cent of all, from diseases of the circulatory system and 386, or 14.2 per cent, from various forms of tuberculosis. Heart disease thus led tuberculosis greatly, as for some months past.

Other notable causes of death were: Violence, 309; diseases of the digestive system, 306; diseases of nervous system, 248; cancer, 188; diseases of respiratory system, 167; Bright's disease and nephritis, 150; and epidemic diseases, 131.

The deaths from epidemic diseases were as follows: Typhoid fever, 59; whooping-cough, 29; malarial fever and measles, each 8; diphtheria and croup, 7; smallpox, 6; and all other epidemic diseases, 14.

The deaths from the four leading epidemic diseases reported for the month were distributed by counties as follows:

Typhoid fever.		Whooping-cough.		Malarial fever	
Alameda	8	Alameda	2	Butte	1
Contra Costa	1	Fresno	4	Fresno	1
Fresno	5	Imperial	1	Kings	1
Imperial	4	Inyo	1	Sacramento	1
Kings	1	Los Angeles	14	San Francisco	2
Lake	1	Orange	3	San Joaquin	1
Los Angeles	18	San Bernardino	1	Yolo	1
Marin	1	San Diego	1		
Placer	1	San Francisco	1	Total	8
Sacramento	4	Sonoma	1		
San Bernardino	1				
San Diego	1	Total	29		
San Francisco	8				
San Joaquin	1				
Santa Clara	2				
Siakiyou	1				
Sonoma	3				
Stanislaus	1				
Tuolumne	2				
Total	59				

Measles.	
Alameda	1
Los Angeles	3
Santa Clara	2
Santa Cruz	1
Solano	1
Total	8

Geographic Divisions.—The following table presents data for geographic divisions, including the metropolitan area, or San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), in comparison with the rural counties of Northern and Central California:

Deaths from Main Classes of Diseases, for Geographic Divisions: August.

Geographic division.	Deaths, August.										
	All causes.	Scrub typhus.	Tuberculosis (all forms).	Cancer.	Diphtheria of peritonsillar system.	Diseases of circulatory system.	Diseases of respiratory system.	Bright's disease and nephritis.	Violence.	All other causes.	
THE STATE	2,710	131	386	188	248	443	167	806	150	309	382
Northern California	314	10	46	16	29	61	18	32	16	45	41
Coast counties	183	7	27	10	20	34	10	22	11	25	17
Interior counties	131	3	19	6	9	27	8	10	5	20	24
Central California	1,411	61	179	106	119	267	91	174	65	154	195
San Francisco	496	16	60	44	39	107	33	64	23	46	66
Other bay counties	337	11	45	22	32	68	26	36	19	37	41
Coast counties	150	6	13	11	15	34	8	18	7	12	26
Interior counties	426	28	61	29	33	58	24	56	16	59	62
Southern California	965	60	161	66	100	115	58	100	69	110	146
Los Angeles	670	44	114	48	67	89	44	53	50	65	96
Other counties	315	16	47	18	33	26	14	47	19	45	50
Northern and Central California	1,725	71	225	122	148	328	109	206	81	199	236
Metropolitan area	835	27	105	66	71	175	59	100	42	83	107
Rural counties	890	44	120	56	77	153	50	106	39	116	129

Sex and Age Periods.—The proportion of the sexes among the 2,710 decedents in August was: Male, 1,645, or 60.7 per cent, and female, 1,065, or 39.3 per cent.

The following table shows the age distribution by numbers and per cents, of deaths classified by sex:

Deaths Classified by Sex and Age Periods, with Per Cents by Age Periods, for California: August.

Age period.	Deaths.			Per cent.		
	Total.	Male.	Female.	Total.	Male.	Female.
ALL AGES-----	2,710	1,645	1,065	100.0	100.0	100.0
Under 1 year-----	317	172	145	11.7	10.5	13.6
1 to 4 years-----	147	69	78	5.4	4.2	7.3
5 to 14 years-----	102	55	47	3.8	3.3	4.4
15 to 24 years-----	180	107	73	6.7	6.5	6.9
25 to 34 years-----	265	161	104	9.8	9.8	9.8
35 to 44 years-----	326	209	117	12.0	12.7	11.0
45 to 54 years-----	339	232	107	12.5	14.1	10.0
55 to 64 years-----	345	235	110	12.7	14.3	10.3
65 years and over-----	689	405	284	25.4	24.6	26.7

This table shows that relatively more females than males died at under 1 year, 1 to 4 years, 5 to 14 years, and 15 to 24 years, or at each age period under 25 years of age, as well as at the period of old age, 65 years and over.

Occupations.—The table below gives, for deaths 15 years and over, the number of men and women for whom some occupation was reported in contrast with those for whom no gainful occupation was shown:

Deaths 15 Years and Over Classified by Sex and Occupation, with Per Cents by Sex, for California: August.

	Deaths.			Per cent male.	Per cent female.
	Total.	Male.	Female.		
15 YEARS AND OVER-----	2,144	1,349	795	62.9	37.1
Occupation reported -----	1,252	1,178	74	94.1	5.9
No gainful occupation-----	892	171	721	19.2	80.8

Of the 1,252 decedents for whom occupations were reported the males numbered 1,178, or 94.1 per cent, and the females only 74, or 5.9 per cent.

The following table shows the distribution of male decedents 15 years and over, engaged in the main kinds of occupations:

Deaths of Males Fifteen Years and Over Engaged in Gainful Occupations, Classified by Kind of Occupation, with Per Cents, for California: August.

Kind of occupation.	Males 15 years and over.	
	Deaths.	Per cent.
ALL OCCUPATIONS -----	1,178	100.0
Professional -----	77	6.5
Clerical and official -----	90	7.6
Mercantile and trading -----	93	7.9
Public entertainment -----	32	2.7
Personal service, police and military -----	23	2.0
Laboring and servant -----	255	21.7
Manufacturing and mechanical industry -----	231	19.6
Agriculture, transportation and other outdoor -----	365	31.0
All other occupations -----	12	1.0

Of the 1,178 male decedents for whom occupations were reported 365, or 31.0 per cent, were engaged in agriculture, transportation, and other outdoor pursuits; 255, or 21.7 per cent, in laboring and servant work; 231, or 19.6 per cent, in manufacturing and mechanical industry; and altogether 327, or 27.7 per cent, in professional, clerical and official, mercantile and trading, and all other occupations.

**REPORT OF THE BUREAU OF THE HYGIENIC LABORATORY
FOR SEPTEMBER.**

WILBUR A. SAWYER, M. D., Director.

Health Officials' Conference.

The Fourth Annual Conference of State, County, and Municipal Health Officials was held at the University of California from September 23d to 28th. The close proximity of the place of meeting to the State Hygienic Laboratory, gave the delegates an opportunity to visit the laboratory and to learn how to take advantage of its services in improving the public health in their own communities. In the afternoon of September 24th the delegates made a special pilgrimage to several institutions on the campus, including the State Hygienic Laboratory. There they were shown preparations which had been made in the diagnostic tests of the laboratory. Considerable interest was shown in the new department for the manufacture of the antirabic virus used by the State Board of Health in giving the Pasteur treatment.

In the corridors of the Hearst Mining Building and in a large tent an elaborate exhibit was held, under the auspices of the League of California Municipalities and the Health Officials' Conference. Among the many exhibits were those of the State Food and Drug Laboratory, the San Francisco Health Department, and the State Hygienic Laboratory, as well as exhibits on public health subjects arranged by instructors in Veterinary Science and Applied Parasitology in the University of California. The exhibit of the State Hygienic Laboratory consisted

of epidemiological maps showing the laboratory's system of branches and depositories, ice-chests and containers for sending water samples, a complete set of the various mailing outfits, the bacteriological instruction outfit, and the apparatus used in preparing material for the Pasteur treatment.

The meeting was exceedingly profitable, not only to the delegates who came, but also to the laboratory staff, who benefited from many of the suggestions which were offered.

Division of Biological Examinations.

Summary of Examinations made in the California State Hygienic Laboratory during the month of September, 1912.

Condition suspected.	Positive.	Negative.	Inconclusive.	Total.
Main Laboratory at Berkeley:				
Anthrax -----	3			3
Diphtheria -----	42	182		224
Gonococcus infection -----	3	5		8
Malaria -----	2	10		12
Plague -----		1		1
Rabies -----	12	4	3	19
Tuberculosis -----	6	24		30
Typhoid -----	8	24		32
Water pollution -----	17	4		21
Miscellaneous -----	7	1	1	9
				359
Northern Branch at Sacramento:				
Diphtheria -----	3	3		6
Gonococcus infection -----	1			1
Malaria -----	1	1		2
Tuberculosis -----		3		3
Typhoid -----	2	5	1	8
				20
San Joaquin Valley Branch at Fresno:				
Anthrax -----		1		1
Diphtheria -----	3	4	1	8
Typhoid -----		2		2
				11
Southern Branch at Los Angeles:				
Diphtheria -----	3			3
Gonococcus infection -----	1			1
Tuberculosis -----	1			1
Typhoid -----	1	4		5
				10
Total number of examinations-----				400

Division of Preventive Therapeutics.

Pasteur Treatment for the Prevention of Rabies by the State Hygienic Laboratory during the month of September, 1912.

	Treatment commenced.	Treatment completed.
Main Laboratory at Berkeley.....	3	0
Northern Branch at Sacramento.....	0	0
San Joaquin Valley Branch at Fresno.....	1	1
Southern Branch at Los Angeles.....	1	0
Laboratory of Sacramento Board of Health, by deputized bacteriologist.....	0	1
Laboratory of San Francisco Board of Health, by deputized bacteriologist.....	3	11
Laboratory of Los Angeles Board of Health, by deputized bacteriologist.....	0	1
Laboratory of Letterman General Hospital, Presidio, by deputized bacteriologist.....	0	0
	8	14

Public Health Instruction.

Participation in Instruction in Public Health during September, 1912.

Main Laboratory at Berkeley:	
Bacteriological instruction outfits sent out.....	0
Bacteriological instruction outfits in use.....	14
Lectures or talks by the Director.....	7

Division of Epidemiological Investigations.

Epidemiological Investigations during September, 1912.

Main Laboratory at Berkeley:	
Special investigations by the Chief Bacteriologist.....	1
Bacteriological investigation of the milk supply of Napa County...	
Special investigations by the Director.....	2
Investigation of an unusual case of typhoid fever suspected of being typhus fever.	
Bacteriological investigation of the excreta of a former typhoid carrier.	

REPORT OF THE BUREAU OF PUBLICATIONS AND HEALTH INFORMATION FOR SEPTEMBER, 1912.

GUY P. JONES, Acting Director.

There has been less poliomyelitis in the South during the past month, with an increase in the north, 41 cases altogether having been reported in the State. The total number of cases reported since January 1, 1912, is 392, of which number 98 died. There seems to be a decrease as the season advances, and it is expected that there will be few if any cases develop after the first rains.

Requests for literature concerning the disease have come from all parts of the State, with the result that the stock of bulletins containing articles upon the subject has been greatly depleted. There are still some of the October, 1910, numbers, however, which contain two articles bearing upon the disease. These will be sent free of charge to all who request it.

REPORT BUREAU FOODS AND DRUGS FOR SEPTEMBER, 1912.

MEYER E. JAFFA, Director.

The analytical chemical work for the months of June, July, August, and September comprise the examination of 475 samples of food and drugs. These include the examinations of meats, ice cream to a large extent, and to a lesser degree, vinegar, extracts, jams, jellies, milk, beverages, frozen oranges, and other miscellaneous samples.

The Laboratory has devoted considerable attention during these past four months to the examination of samples of foods and food products supplied to the State institutions. Such examinations are made for the purpose of maintaining a high standard of quantity for goods supplied to the inmates of the State hospitals, and so on.

During the month of September a great deal of time was required for the preparation and installing of the food exhibit of the exposition held in conjunction with the Fourth Annual Conference of Health Officials of the State of California. This Conference was held at the same time as the Conference of the League of California Municipalities—September 23d to 28th, inclusive. The full report of the Conference of Health Officials will appear elsewhere.

The general food exhibit held at the Mining Building during the time above indicated was under the general supervision of the Director of the State Laboratory, in accordance with the request of the California League and with the sanction of the State Board of Health. This exposition was of great educational value, in that there was an attempt to control to a very large extent, intemperate advertising appearing on printed matter distributed in connection with food products. It is to be hoped that the movement so started will continue and be the means of eliminating from the market all such intemperate advertising—in other words, let the label and accompanying literature tell the truth, the whole truth, and nothing but the truth.

The following Notices of Judgment have been received since the last issue of the bulletin. Any person wishing copies of these notices may obtain the same by addressing the Director, Bureau Foods and Drugs, University of California, Berkeley, California.

Notices of Judgment 1335 to 1447.

- No. 1355—Adulteration and Misbranding of Extract of Peppermint.
- No. 1356—Misbranding of Apple Butter.
- No. 1357—Misbranding of Macaroni.
- No. 1358—Adulteration of Ketchup.
- No. 1359—Misbranding of Cheese.
- No. 1360—Adulteration of Milk.
- No. 1361—Misbranding of Rice.
- No. 1362—Adulteration and Misbranding of Sweet Cider.
- No. 1363—Misbranding of Vinegar.
- No. 1364—Adulteration and Misbranding of Powdered Milk.
- No. 1365—Adulteration of Gelatine.
- No. 1366—Adulteration and Misbranding of Vanilla Extract.
- No. 1367—Misbranding of Clymer's Table Seerop Temtors.
- No. 1368—Misbranding of Macaroni.
- No. 1369—Adulteration of Dried Apples.
- No. 1370—Adulteration and Misbranding of Maraschino Cherries.
- No. 1371—Adulteration and Misbranding of Tomatoes.
- No. 1372—Adulteration of Peanuts.
- No. 1373—Adulteration and Misbranding of "Spirits Turpentine."
- No. 1374—Misbranding of Macaroni.
- No. 1375—Adulteration of Chestnuts.
- No. 1376—Misbranding of Berry's Freckle Ointment.

- No. 1377—Adulteration and Misbranding of Vanilla Extract.
 No. 1378—Adulteration of Chestnuts.
 No. 1379—Misbranding of Kintzo Beauty Cream.
 No. 1380—Adulteration of Oysters.
 No. 1381—Adulteration of Tomato Catsup.
 No. 1382—Adulteration of Oysters.
 No. 1383—Misbranding of Maraschino Cherries.
 No. 1384—Misbranding of Cheese.
 No. 1385—Adulteration of Oysters.
 No. 1386—Adulteration of Oysters.
 No. 1387—Misbranding of Cheese.
 No. 1388—Misbranding of Rice.
 No. 1389—Adulteration of Powdered Egg Albumen.
 No. 1390—Adulteration and Misbranding of Peroxide of Hydrogen.
 No. 1391—Misbranding of Preserves.
 No. 1392—Alleged Misbranding of Clarendon Natural Mineral Spring Water.
 No. 1393—Misbranding of Apple Jelly.
 No. 1394—Misbranding of Butterfly Cane and Maple Syrup.
 No. 1395—Adulteration of Ice Cream Cones.
 No. 1396—Adulteration of Tomato Pulp.
 No. 1397—Misbranding of Malt Extract.
 No. 1398—Misbranding of Peach Jam.
 No. 1399—Misbranding of Molasses Tentors.
 No. 1400—Misbranding of Apple Butter.
 No. 1401—Adulteration and Misbranding of Evaporated Apples.
 No. 1402—Adulteration and Misbranding of Peppermint Extract.
 No. 1403—Adulteration of "Figlets."
 No. 1404—Adulteration and Misbranding of Salad Oil.
 No. 1405—Adulteration and Misbranding of Tomato Ketchup.
 No. 1406—Misbranding of Cranberry Jam.
 No. 1407—Adulteration of Tomato Pulp.
 No. 1408—Adulteration of Dried Apple Chops.
 No. 1409—Misbranding of Alfalfa Meal.
 No. 1410—Adulteration and Misbranding of Cider Vinegar.
 No. 1411—Misbranding of Fish (Silver Hake).
 No. 1412—Misbranding of Macaroni.
 No. 1413—Adulteration and Misbranding of Brooke's Lemos (Lemon Juice).
 No. 1414—Misbranding of Cheese.
 No. 1415—Misbranding of "New Amsterdam Dutch Rusk."
 No. 1416—Adulteration of Evaporated Apples.
 No. 1417—Misbranding of Wine.
 No. 1418—Adulteration and Misbranding of Vinegar.
 No. 1419—Misbranding of Prepared Mustard.
 No. 1420—Misbranding of "Cream of Hops" and "Hop Tonic."
 No. 1421—Misbranding of Cheese.
 No. 1422—Adulteration and Misbranding of "Ginger Extract" and "Peppermint Essence."
 No. 1423—Adulteration of Milk.
 No. 1424—Adulteration of Milk.
 No. 1425—Adulteration of Cream.
 No. 1426—Adulteration of Ice Cream Cones.
 No. 1427—Adulteration and Misbranding of Catsup; Adulteration of Tomato Catsup; Adulteration of Catsup.
 No. 1428—Misbranding of Camphor.
 No. 1429—Adulteration and Misbranding of "Vanilla Flavor."
 No. 1430—Adulteration and Misbranding of "Blackberry Cordial."
 No. 1431—Adulteration and Misbranding of Cheese.
 No. 1432—Misbranding of Creme De Menthe Cherries.
 No. 1433—Adulteration and Misbranding of Ginger Extract.
 No. 1434—Misbranding of Salad Oil.
 No. 1435—Adulteration and Misbranding of Apricot and Blackberry Brandy.
 No. 1436—Adulteration of Tomato Catsup.
 No. 1437—Adulteration of Tomato Pulp.
 No. 1438—Adulteration of Preserved Whole Egg.
 No. 1439—Misbranding of Maraschino Cherries.
 No. 1440—Adulteration and Misbranding of Blackberry Cordial.
 No. 1441—Adulteration and Misbranding of Cider Vinegar.
 No. 1442—Adulteration and Misbranding of Peppermint Essence and Jamaica Ginger Essence.
 No. 1443—Adulteration and Misbranding of Turpentine.
 No. 1444—Adulteration of Frozen Eggs.
 No. 1445—Adulteration and Misbranding of Maple Syrup.
 No. 1446—Adulteration of Chocolate Ice Cream and Vanilla Ice Cream.
 No. 1447—Adulteration and Misbranding of Vanilla Flavor.

Food and Drug Cases Referred to District Attorneys July 6, 1912.

Name of article.	Offense.	Manufacturer or jobber.	Accused dealer.	Locality.
Vanillin Flavoring Powder	Adulterated. Coumarin substituted for vanillin.	J. H. Long, Oakland.	J. H. Long.	Oakland
Lemon Extract	Mislabeled. Contains coal-tar color not declared.	Wilson-Olose & Co., Iowa City, Iowa.	H. G. Chaffee.	Pasadena
Wild Cherry Syrup	Mislabeled. Contains coal-tar color and benzoates not declared.		Geo. Dallanis	Pasadena
Thyme	Adulterated. Foreign starch substituted for thyme.	James & Hug, San Francisco.	J. J. Crow.	Oakland
Red Wine Vinegar	Mislabeled. Not standard wine vinegar. Adulterated. Other materials substituted for wine vinegar.		Costa Brothers	San Francisco
Pure Cider Vinegar	Mislabeled. Not standard cider vinegar. Adulterated. Other materials substituted for cider vinegar.		Alameda Fruit Co.	Alameda
Soda Lemon Water	Adulterated. Contains saccharin, not permitted in normal foods.	Arrowhead Springs Water Co., Los Angeles.	Arrowhead Springs Water Co., Inc.	Los Angeles
Frankfurter Sausage	Mislabeled. Contains cereal, not declared.		Contra Costa County Meat Co.	Antioch
Bologna Sausage	Mislabeled. Contains cereal, not declared.		Contra Costa County Meat Co.	Antioch
German Sausage	Mislabeled. Contains cereal, not declared.		O. Angermann	San Francisco
Banana Syrup	Mislabeled. Contains coal-tar color, not declared.		Rellos Co., Nick Pappas.	Pasadena
Pineapple Syrup	Mislabeled. Contains coal-tar color, not declared.		Olympia Grocery Co., Geo. Dallanis.	Pasadena

LIST OF COUNTY HEALTH OFFICERS.

County.	Health officer.	Address.
Alameda	Dr. C. L. McKown	Niles
Alpine*	County Recorder Frank Smith	Markleeville
Amador	Dr. E. E. Endicott	Jackson
Butte	Dr. L. Q. Thompson	Gridley
Calaveras	Dr. Irwin B. March	San Andreas
Colusa	Dr. C. A. Poage	Colusa
Contra Costa	Dr. W. S. George	Antioch
Del Norte	Dr. E. M. Fine	Crescent City
El Dorado	Dr. L. M. Leisenring	Placerville
Fresno	Dr. W. T. Burks	Fresno
Glenn	Dr. J. A. Randolph	Willows
Humboldt	Dr. Carl T. Wallace	Eureka
Imperial	Dr. Virgil McCoombs	El Centro
Inyo	Dr. I. J. Woodin	Independence
Kern	Dr. G. M. Bumgarner	Bakersfield
Kings	Dr. Ralph Motherol	Hanford
Lake	Dr. W. E. Upton	Kelseyville
Lassen	Dr. W. E. Dozier	Susanville
Los Angeles	Dr. E. O. Sawyer	Los Angeles
Madera	Dr. Mary R. Butin	Madera
Marin	Dr. J. H. Kuser	Novato
Mariposa	Dr. F. L. Wright	Mariposa
Mendocino	Dr. J. Liftchild	Ukiah
Merced	Dr. C. H. Castle	Merced
Modoc	Dr. John Stile	Alturas
Mono*	Dr. R. A. Cushman	Bridgeport
Monterey	Dr. Garth Parker	Salinas
Napa	Dr. E. G. Smart	Napa
Nevada	Dr. Carl P. Jones	Grass Valley
Orange	Dr. John Wehrly	Santa Ana
Placer	Dr. O. L. Barton	Loomis
Plumas	Dr. F. D. Walsh	Quincy
Riverside	Dr. George E. Tucker	Riverside
Sacramento	Dr. Hugh Beattie	Elk Grove
San Benito	Dr. J. M. O'Donnell	Hollister
San Bernardino	Dr. Philip M. Savage	San Bernardino
San Diego	Dr. Nathan Hunt	San Diego
San Francisco	Dr. R. G. Brodrick	San Francisco
San Joaquin	Dr. R. B. Knight	Stockton
San Luis Obispo	Dr. H. M. Cox	San Luis Obispo
San Mateo	Dr. W. G. Beattie	Colma
Santa Barbara	Dr. J. C. Bainbridge	Santa Barbara
Santa Clara	Dr. William Simpson	San Jose
Santa Cruz	Dr. W. R. Congdon	Santa Cruz
Shasta	Dr. F. Stabel	Redding
Sierra	Dr. R. B. Davy	Downieville
Siskiyou	Dr. F. J. McNulty	Yreka
Solano	Dr. S. G. Bransford	Suisun
Sonoma	Dr. P. A. Meneray	Santa Rosa
Stanislaus	Dr. F. R. De Lappe	Modesto
Sutter	Dr. E. V. Jacobs	Meridian
Tehama	Dr. E. E. Thompson	Red Bluff
Trinity	Dr. D. B. Fields	Weaverville
Tulare	Dr. W. A. Preston	Visalia
Tuolumne	Dr. Wm. Lyman Hood	Sonora
Ventura	Dr. A. A. Maulhardt	Oxnard
Yolo	Dr. W. J. Blevins	Woodland
Yuba	Dr. J. H. Barr	Marysville

LIST OF CITY HEALTH OFFICERS.

City.	Health officer.	City.	Health officer.
Alameda	Dr. A. Hieronymus	Calexico	Dr. Wm. F. Smith
Albany	Dr. Robt. Hector	Chico	G. H. Taylor
Alhambra	Dr. F. E. Corey	Chino	Dr. John W. Callnon
Alturas	Dr. John Stile	Claremont	
Alviso		Cloverdale	Dr. Cory C. Ledyard
Anaheim	Dr. J. L. Beebe	Coalinga	Dr. H. S. Warren
Antioch	Dr. W. S. George	Colfax	
Arcadia		Colton	Dr. L. A. J. La Motte
Arcata	Dr. G. W. McKinnon	Colusa	Dr. C. A. Poage
Arroyo Grande		Compton	J. W. Stone
Auburn	A. S. Waldo	Concord	Dr. F. F. Neff
Azusa	Dr. L. W. Atkinson	Coram	Geo. H. Thomas
Bakersfield	S. D. Mullins	Corning	Dr. W. F. Maggard
Belvedere	Dr. Florence Scott	Corona	Dr. W. H. Chapman
Benicia	Dr. W. L. McFarland	Coronado	Dr. Raffaele Lorini
Berkeley	Dr. J. J. Benton	Cottonwood	Dr. A. B. Gilliland
Biggs	Dr. B. Caldwell	Covina	
Bishop	Dr. J. W. Shute	Crescent City	
Blue Lake	Dr. G. N. Wood	Daly City	
Brawley	Dr. L. L. Lindsey	Davis	Dr. W. E. Bates
Burbank		Delano	Dr. H. Hildreth
Burlingame		Dinuba	H. Hurst
Callistoga	Dr. Henry Abrons	Dorris	Dr. A. A. Atkinson

LIST OF CITY HEALTH OFFICERS—Continued.

City.	Health officer.	City.	Health officer.
Dixon.....	W. C. Rhem	Paso Robles.....	B. B. Pierce
Dunsmuir.....	Dr. W. B. Mason	Perris.....	A. F. Hardy
Eagle Rock.....	Dr. C. H. Phinney	Petaluma.....	Dr. J. M. Proctor
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Fullerton.....	Dr. F. J. Gobar	Redondo Beach.....	Dr. D. R. Hancock
Gilroy.....	Dr. John A. Clark	Redwood City.....	Dr. J. L. Rose
Glendale.....	Dr. R. E. Chase	Richmond.....	Dr. Chas. R. Blake
Grass Valley.....	Paul E. Sears	Rio Vista.....	Dr. A. J. McKinnon
Gridley.....	Dr. L. L. Thompson	Riverdale.....	Dr. Thos. R. Griffin
Hanford.....	Dr. C. L. Scott	Rocklin.....	H. D. Fiesche
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Jackson.....	George Hambric	San Juan.....	W. R. Moore
Kennett.....	Dr. J. P. Sandholdt	San Luis Obispo.....	Dr. P. L. Rookledge
Kernville.....		San Rafael.....	Dr. W. F. Jones
King City.....		San Mateo.....	Dr. B. G. Goodspeed
Kingsburg.....		San Leandro.....	P. C. Du Bois
Lakeport.....	Jabes Banks	Santa Ana.....	Dr. J. I. Clark
Larkspur.....		Santa Barbara.....	Dr. D. A. Conrad
Lincoln.....	F. R. Elder	Santa Cruz.....	Dr. H. E. Piper
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Lodi.....	Dr. F. W. Colman	Santa Paula.....	Dr. B. E. Murrill
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Lompoc.....		Santa Maria.....	Dr. O. P. Paulding
Lordsburg.....	Dr. J. E. Hubble	Sausalito.....	Dr. A. H. Mays
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Los Banos.....	Dr. J. L. McClelland	Selma.....	Dr. F. H. Williams
Los Gatos.....	Dr. C. K. Small	Sierra Madre.....	Dr. R. H. Mackerras
Loyalton.....	Dr. G. L. Coates	Sebastopol.....	Dr. J. J. Keating
Madera.....		Sisson.....	
Maricopa.....	Dr. H. N. Taylor	South Pasadena.....	Dr. C. A. Whiting
Martinez.....	Dr. E. E. Brown	South San Francisco.....	W. P. Acheson
Marysville.....	Wm. Meek	Stockton.....	Dr. R. T. McGurk
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Palo Alto.....	Hubert O. Jenkins	Yuba City.....	
Pasadena.....	Dr. Stanley P. Black		

THE CALIFORNIA STATE BOARD OF HEALTH BULLETIN IS ON FILE IN EVERY PUBLIC LIBRARY, NEWSPAPER OFFICE, HIGH SCHOOL LIBRARY, AND IN THE OFFICES OF COUNTY AND CITY HEALTH OFFICIALS. CITIZENS DESIRING COPIES OF THIS ISSUE FREE OF CHARGE SHOULD APPLY TO THE SECRETARY, SACRAMENTO.

CALIFORNIA STATE BOARD OF HEALTH

MONTHLY BULLETIN

Vol. 8

NOVEMBER, 1912

No. 5

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SACRAMENTO, CALIFORNIA
1912

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Division Bacteriologist and Field Officer.....Auditorium Building, Los Angeles

REGULAR MEETINGS.

The meetings of the California State Board of Health are held regularly the first Saturday of each month, but the quarterly meetings required by law to be held at the Capitol of the State are ordinarily designated as January, April, July, and October.

By courtesy of the University of California the Food and Drug Laboratory and the Hygienic Laboratory are located in University buildings at Berkeley, California.

Address all communications to the

SECRETARY, Sacramento, Cal.

NOVEMBER BULLETIN.

A PERMANENT "CLEAN UP" COMMITTEE AND A VIEWPOINT.*

By WILLIAM F. SNOW, Secretary California State Board of Health.

History indicates that in the beginning, man once lived much as the wild meat-eating animals of to-day live. Houses and cooking and clothing and medicines were unknown. With the influence of invention and coöperation among men, have come all the present day complications of modern living. We are accustomed to recognize the great changes which industrial and social conditions have undergone through these influences. We recognize that steam and electricity, commerce and education have brought the people of the world very near to each other. In matters which appeal to the senses we are accustomed to believe that the virtues, vices and customs of one nation or group of people are communicable to other nations or people, and we encourage or fight this communication according as we believe it to be good or bad.

In the case of importation of a dangerous insect or of a serious animal disease we are accustomed to prompt action by our national and state governments. For years there was a most rigid quarantine inspection line for Texas Cattle Fever extending across California, at one time as far north as Stockton (Mount Diablo base line). The quarantine of this animal fever, which has cost the United States millions of dollars, is understood by the public to be due to the activity of a "germ" carried by a species of cattle tick. When the Mediterranean fly threatened California fruit interests the Legislature promptly took action. But when the bubonic plague first appeared in California many people said that it is nonsense to believe the warnings of danger voiced by health officers and scientists. This was because organized effort to seriously fight human diseases is new.

It is true in biology, as it is in physics, that there is not one kind of science for animals and plants, and another kind of science for human beings. It is as true of a man, as of an animal, that if he steps on a nail he will cause a wound which will bleed. If that nail happens to complete an electric circuit he will feel the electric shock, even though he can not see or otherwise recognize the presence of the electricity. If the nail happens to be covered with invisible lockjaw "germs," which are thus introduced into the wound, he may experience the results of disease two weeks later and may lose his life. The difference between these physical and pathological results of contact with the nail is that the physical transmission of electricity is immediate and certain to occur, while the transmission of the disease depends upon the germs introduced being able to overcome the body cells in the battle which must go on before the disease conquers. A story written by H. G. Wells, called "The War of Worlds," is based on the supposed residents of Mars never having had any contact with disease germs. Therefore,

*Address read before a public meeting of representative organizations held under the auspices of the Sacramento Chamber of Commerce, Nov. 14, 1912.

when they came to this world they quickly succumbed to these agencies of death. This is an interesting speculation, but science has recently shown that it is not true. Chicks raised under absolutely germ free conditions not only thrive but stand the transition to the germ-laden environment of the normal world without apparent harm. Such experiments indicate that the body has great natural resources for adapting itself to an invisible germ-world filled with both friend and foe. They also help to explain why the relations of disease and health are difficult to explain to persons who know nothing of biology.

Knowledge of disease prevention a recent acquisition.

All these things are largely a matter of popular education. Everybody knows that hog cholera is a communicable disease of hogs, and that by special methods a serum can be made which may be inoculated into hogs to prevent their having the disease. Nearly everybody recognizes now, that similarly, diphtheria in man is caused by a "germ" which may be combatted by a serum called antitoxin. Every one also knows that yellow fever is carried by a species of mosquito, and most people now understand that malaria is carried only by another species of mosquito. But beyond such general knowledge people have not yet learned the details of preventive medicine or how to reason logically on the causes and effects of disease.

This is not to be wondered at when we consider how recently all our modern knowledge of disease causation and prevention has developed. Our civil war was being fought when Pasteur and his contemporaries were trying to prove before the highest scientific tribunal (the French Academy) that there was no such thing as spontaneous generation of life—that once a material was really sterile it remained so until germ life succeeded in entering. This is a principle every housewife uses annually when she puts up her fruit. This initial scientific battle occurred fifty years ago. Fifty years is not a long time. Twenty years is a still shorter time, and twenty years will cover most of the important work of demonstrating what can be done to prolong life and safeguard health by applying the discoveries of biological science. In the control of animal diseases, the active scientific and public education work carried on has taught the people to watch for and adapt themselves to new biological discoveries. As I have mentioned hog cholera is understood to be a communicable germ disease, and the State spends over \$5,000 per year on the preparation and free distribution of a preventive serum, yet the scientific puzzle of the relations of this disease to the swine plague bacillus, and the actual cause of the disease are still unsolved. Because the farmers understand the general facts in these things they trust the scientist, and by applying his discoveries, get results.

Citizens must understand in order to coöperate.

I may repeat that there is not one kind of science for hogs and another for humans. Many human diseases continue to resist the efforts of science to discover their causes, proper treatment, and methods of prevention, but every year some gain is made. Cancer is still a baffling disease; certain phases of kidney and heart diseases remain obscure; poliomyelitis still defies the scientists; but long lists of diseases which *in past centuries* have caused great tragedies and panic have been con-

quered. Tuberculosis is no longer a scientific puzzle, nor a difficult therapeutic problem, nor even a hopeless educational problem. It has become primarily an economic and housing problem. Typhoid fever has become largely a problem of building proper water supplies and sewer systems; diphtheria has become a problem of school inspection, laboratory diagnosis and early use of antitoxin; and syphilis has become a problem of a single standard of morals, health certificates for marriage and proper education of the rising generation. Some diseases like typhus fever, cholera and plague have been so successfully fought that the average physician never sees a case in a long experience in practice.

Before great progress can be made in conservation of health the public must clearly understand the general factors in the prevention of each preventable disease. Not only this, but the citizens must know what can be done for them by employed experts and other officials, and what they must do for themselves. For example, malaria can be eliminated from a city or given rural district without the citizens doing anything about it, provided they are willing to pay enough to employ men to eradicate the anopheles mosquito. They may delegate the elimination of typhoid fever without direct participation if they provide laws and adequate appropriations. But tuberculosis demands that every citizen must coöperate by training himself in the habits and associations which will prevent his giving or receiving the disease. With rabies, he must be willing to keep the spirit of the law which requires precautions to prevent the possibility of his dog biting any other dog or person. No laws, without most drastic provisions and prohibitive expenditures, can force people against their understanding and will to protect themselves and their communities against a large number of diseases of this character.

People must demand truth from science.

Cleanliness, both personal and municipal, is a matter for voluntary and intelligent coöperation rather than enforcement of law, except in flagrant cases. As a rule it can not be shown in specific instances that disagreeable sights, smells or sounds are directly causes of disease. They are nuisances, and are allies of disease because of the opportunities afforded various animal or vegetable carriers of disease. And just as it pays a prosperous railroad company to spend millions of dollars in keeping the weeds off its roadbed in order to facilitate the early detection of a loosened spike that might be the first factor in a disastrous wreck, so it will pay the people to spend money and personal effort in keeping their houses, yards and city clean and free from all removable rubbish, as a measure in preventing the unrecognized approach of disease carriers. The level headed majority of the people must hold this view and stand unconfusedly between those who believe that all disease originates in filth, and those who believe that disease is only a matter of imagination which can be controlled at will. These people who hold the balance of power must demand the exact truth from science and be prepared to do the best thing suggested in each hour for action, even though the final unraveling of the methods of disease transmission prove many things previously done to have been unnecessary.

The story of yellow fever is a good illustration of this. For a generation and more every appearance of yellow fever was the signal

for "shotgun" quarantines of cities and states; railway trains were halted and all ordinary channels of commerce blockaded; even the army and navy medical regulations required all equipment for the care of patients to be burned. The discovery that a single species of mosquito is the sole agent in spreading yellow fever has completely revolutionized its control. This fact does not discredit science in any way nor does it censure those persons who ordered "shotgun" quarantines in the days when the disease had to be faced without knowledge of its nature and methods of attacking human beings. The current story of infantile paralysis is another illustration of the need for immediate action which for the present must be based on imperfect knowledge of the enemy we are fighting. It has seemed best to require rigid quarantine of the families and social units in which the disease appears, but future investigation may at any time give us the key to as simple and certain a control of this disease as has been employed to make yellow fever a matter of history.

Cost of cleanliness proves a good investment.

I have spent some time on the importance of a viewpoint in taking up the organization of a permanent clean-up campaign, because you will fail unless you have faith in the importance and need for persistent effort in maintaining a sound basis for action. Filth in itself can not generate disease any more than milk once it is sterile, can generate the bacilli which cause it to sour; but in the long run, barring unusual exceptions, low death-rates and long life always go with records of clean communities. While cleanliness is only one factor in improving health conditions it must also be borne in mind that the improvement of health is only one advantage to be derived from a clean-up policy. Increased pleasure and comfort of living are important.

Any one who has studied this problem in the great cities of the world can not help being impressed with the fact that the people as a whole, who live in clean cities like Berlin and Havana, are happier than those living in unclean cities, and that the cost of such cleanliness, great as it may be, is a good investment.

Having said so much, it is my purpose to sketch briefly what I believe will be the trend of organization if you grow and become a force in the city.

A symposium of ideas for a "clean-up" campaign.

First, you will undoubtedly advocate certain "enthusiasm" days for cleaning up. Then you may try many of the experiments that momentarily catch the public attention, such as the tin-can collection competition for school children, and the fly capture competition, and what not. But all such measures are valuable only as original, popular educational methods. They take time and money generally, and after the fever of excitement abates there are still cans and flies innumerable. You may try other plans of sustaining public interest, such as the simultaneous display in important store windows of models of approved garbage cans and rubbish fire-cages. You may try the effect of publicity in comparing one section of the city with another. A spitting census *would stimulate* considerable discussion. I have had such observations *made in various cities*. Here in Sacramento, for example, the spitting

zones are quite sharply delineated. One could almost reduce the data to a formula giving the average number of expectorations per hour that will be deposited in violation of law on each street in the business portion of the city. My own purpose in collecting such data was to find out how many such expectorations were unintentional, and how many women's skirts were soiled and the transfer of tuberculosis to a home rendered possible by this means. A barn and neglected manure-pile census would prove a debating point. A daily comparison of the number of quarts of flies trapped in each block would be found to bear a definite relation to the number of unclean barns. After you have worked at the essential clean-up problems you will undoubtedly be drawn into the active encouragement of special features of cleanliness or attractiveness.

The idea advanced by Dr. Charles C. Browning of Los Angeles, for narrow running water gutters extending ten feet on either side from each street crossing corner in the business district, is excellent, and would provide for the immediate carrying into the sewers of most of the sputum now expectorated on our sidewalks. The psychology of Mrs. Alice L. Parks' contention, that we should post signs "spit here" instead of only signs "do not spit," is sound. Just as business firms employ experts to write signs and window drapers to devise methods of influencing the public demand, so your committee will probably utilize similar talent in obtaining public coöperation.

European cities apply unique indirect methods.

London ropes off certain side streets, and even sections of important thoroughfares, for specified hours of the day, as play places for the crowded tenements. These street areas are specially cleaned and the police act in a way, during the evening hours, as play supervisors. In New York, on hot days, a special detail of street cleaners and police go through the crowded portions of the East Side and turn on the fire plugs for half hour shower-bath frolics. In many European cities there are systematic efforts made to plant flower or vine seeds over all vacant lots, and wherever one or more vacant blocks exist, permits under certain conditions are issued to families who live in flats, to have a small garden or play-plot. Some of the gayest, happiest pictures I recall of many cities in Germany and even as far north as Copenhagen, are of the evening social gatherings of the working men and women in these play-plots. The actuating purpose behind this movement is the preservation of the home and limitation of the poverty and disease due to alcoholism, but it is a powerful factor in the "clean-up" work of Europe.

In Havana a special committee has the power to compel a man to repaint his house if he uses a color scheme hopelessly at variance with ideas of harmony in colors. In such matters much may be done without law by molding public sentiment. Many cities have regulations requiring buildings to be placed a certain number of feet back from the street. But here again general sentiment unaided by law is most influential. Europe is full of streams, intrinsically far less beautiful than the Sacramento, but by inexpensive walks and methods of beautifying the banks, they become most picturesque and varied in attractiveness. We have an Arbor Day but we make comparatively little

use of it. The supervision of billboards, which San Francisco adopted yesterday, is an excellent movement. This movement should be extended to handbills and to dishonest advertising of cures for disease.

Supervision of cheap lodging houses not to be overlooked.

There are other fields of activity which I believe you will be led into. The supervision of the cheap lodging houses of this city is one of these. If you will question the patients in the city and county hospital you will find they nearly all spent from weeks to months in the ten-cent lodging houses here before becoming too helpless, financially and physically, to keep up the fight any longer. You could do an invaluable service to such men by looking up the owners of buildings used for such purposes and taking them to see how these places from which they derive revenues are conducted. The supervision of the retail grocery, meat and bakery shops is another field the women of the city could especially cover. The State law on the sanitation of food stores is excellent but is not generally enforced. The man who goes to the expense of screening his goods from flies, who minimizes the handling of goods by clerks, and provides convenient washroom and toilet facilities for employees receives no more patronage or words of commendation than his competitor who does none of these things. The women have it in their power to do more by occasional personal visits to their tradesmen's stores and by tactful praise or criticism, than can ever be accomplished by official inspection and court fines.

But I must not bore you with further remarks. There is only one other important field of activity which I believe you should be drawn into. In early days it mattered little to the residents of Sutter's Fort what the Indians, camped at Folsom or along the Sacramento River, did, or had in the way of diseases, provided only they did not drink too much firewater and go on the warpath. But to-day with all the advantages of modern transportation, the residents of this vigorous city that has overflowed the confines of the old Fort are concerned very materially in what the people do or have in the way of diseases, for a hundred miles around. You should have a subcommittee on rural sanitation, which could work with local and State officials in all the territory directly contributing to Sacramento's milk, meat and vegetable supply.

Present municipal machinery can accomplish results.

And without further illustration I may say in conclusion that I believe you will accomplish most and have greatest influence if you organize a nucleus of strong committees on the various special subjects you may decide to take up, develop a large number of interested volunteer-reserves about each committee for responses to every appeal of their committee, and then work for the enforcement of existing laws and the encouragement of each citizen to do for himself the particular thing he should do to promote the cause. The city has a department of health and a department of police, a department of parks, and of streets, and ample laws, if enforced, to accomplish whatever is desired. These departments will do most of the administrative and constructive detail work, but they need such a permanent organization as you propose, to create favorable public sentiment, and

I may add parenthetically—to keep prodding them. I think I may say your Commissioners and department chiefs will agree with this view. In anticipation of your really organizing for permanent effort I believe I may state that Commissioner Bliss is considering the plan in operation in a few cities, for utilizing the police force as sanitary inspectors for reporting nuisances and other violations of the health ordinances, and as agents of the health officer in serving notices of abatement and reporting that the notices have been complied with. This is entirely practicable and works well where there is a genuine public sentiment toward the maintenance of a high standard of municipal cleanliness. This is but one of many similar plans that are available for carrying into effect measures decided upon. It only becomes necessary for your organization to arouse interest and “keep tab” on the results achieved. The intermittent enthusiasm of impractical and misguided reformers on the one hand, and indifferent or incompetent public officials on the other, constitute your sources of danger. Both these forces are invaluable assets. It should be your aim to curb the former and stimulate the latter to united effort on each phase of the problem which you select for solution.

REPORT OF THE BUREAU OF ADMINISTRATION FOR OCTOBER, 1912.

JOHN F. LEINEN, Director.

Executive Division.

During the month there were a large number of local nuisances arising in all sections of the State which were referred to this division by municipalities and individuals for investigation. These nuisances arose in some cases from improper methods of garbage disposal or resulted from improper and insufficient management of hog ranches and in other cases they arose from causes such as overflowing cesspools, improper location and maintenance of privy vaults, poor housing conditions, insanitary industrial camps, pollution of streams, expectorating in public buildings, etc.

In most cases these complaints were referred to the local health officer for investigation and report. This division is required to follow up such matters until action looking toward permanent abatement is secured, thus entailing a large amount of correspondence, but only a small proportion compared with the letters received and sent in connection with the many other subjects handled daily.

Considerable correspondence was made necessary and a large quantity of instructive literature distributed on account of the extensive investigation which the Board proposes to make in solving the problem of the disease of poliomyelitis in California.

Summary of office work for October, 1912.

Items.	Total.	No. of Subjects.	Adminis- trative.	Mor- bidity.	Inter- Bureau.	Miscal- laneous.
Letters received -----	2,208	180	590	720	516	382
Letters sent -----	2,355	180	620	820	554	361
Circular letters sent -----	300	2	-----	-----	300	-----
Report blanks sent -----	1,910	9	260	1,500	150	-----
Reports received -----	1,406	15	260	926	220	-----
Press clippings, bulletins, and newspapers received -----	1,545	32	170	930	250	195
Accounts audited -----	148	-----	20	-----	128	-----
Estimates approved items -----	151	-----	19	-----	132	-----
Checks issued -----	100	-----	30	-----	70	-----
General orders issued -----	56	-----	56	-----	-----	-----
Circular orders issued -----	28	-----	28	-----	-----	-----
Miscellaneous letters advising local health officers and com- munities -----	127	20	40	81	6	-----
Bulletins and other educational literature sent to local health officers and the public -----	109,675	-----	400	-----	104,675	4,600

Legal Division.

Forty-four persons and firms were summoned to appear before the Board at its regular monthly meeting October 5, 1912, to show cause why they should not be prosecuted for violating the State Pure Food and Drug Laws.

The attorney for the Board rendered the following formal opinions during the month, viz.:

Opinion No. 42, passing upon the legality of a label used on canned salmon.

Opinion No. 43, passing upon the right of a jobber to use the legend "Guaranteed by John Doe Company, under the Food and Drugs Act, June 30, 1906, Serial No. 3810," when in fact said serial number stands in the name of the manufacturer of such goods.

Opinion No. 44, passing upon the legality of a label bearing the words "Tomato—Puree," when the contents of the can were made from whole tomatoes.

Opinion No. 45, passing upon the right of local registrars to charge fees for filing death certificates.

In addition to these formal opinions, the attorney submitted to the Board a number of informal opinions presented in the form of letters, covering numerous subjects relating to pure food and drug matters, powers of State Board of Health, assignment of duties of employees of State Board of Health, etc.

Division of Morbidity Returns.

In so far as funds permit every serious outbreak of communicable disease is carefully followed and where necessary thoroughly investigated. The Division has kept in close touch with the movement of communicable diseases by the weekly reports from local health officers of certain of these diseases, and of others such as plague, Asiatic cholera, yellow fever or typhoid fever, which are reported immediately on their occurrence, along with specified data regarding the source, care, precautions and the like appropriate for each disease. A record is kept of

these by means of which the Division is kept informed of health conditions reflected by these diseases and is ready here and there to apply a remedy. By these records, correspondence, newspaper clippings and information from other reliable sources, the Division has constantly at hand a memorandum of each community as to its transient or persistent affection with these preventable causes of sickness, and has a gauge by which to measure and give advice to the local health officer, in case he needs it, and to take State action in the community affected, if found necessary.

Morbidity Report for October, 1912.

Disease.	Cases	Places.
Poliomyelitis	45	23
Smallpox	12	10
Diphtheria	126	25
Typhoid	199	23
Scarlet fever	142	27
Pneumonia	19	5
Tuberculosis	148	11
Chickenpox	67	12
Gonorrhea	67	4
Syphilis	6	3
Mumps	132	10
Malaria	31	3
Measles	19	11
Erysipelas	12	3
Epidemic cerebro-spinal meningitis	3	3
Scabies	4	1
Erysipelas	14	4
Tonsillitis	6	2
Rotheln	1	1
Urticaria	1	1
Hookworm	12	1
Amoebiasis	1	1
Totals	1,036	184

Special Report on Morbidity from Poliomyelitis.

Cases Reported from October 1st to October 31st, 1912.

Alameda County	3
Albany 1, Oakland 2.	
Fresno County	4
Fresno City 2, Rural 2.	
Imperial County	2
Brawley 2.	
Los Angeles County	10
Los Angeles City 3, Monrovia 2, Pasadena 2, Pomona 1, Rural 1.	
Napa County	1
Napa City 1.	
Orange County	1
Orange City 1.	
Riverside County	2
Banning 1, Riverside 1.	
Sacramento County	8
Bridgehouse 1, Sacramento City 7.	
San Bernardino County	1
Colton 1.	
San Diego County	4
San Diego City 4.	
San Francisco	5
Santa Clara County	2
Santa Clara 1, Rural 1.	
Sonoma County	1
Cloverdale 1.	
Tehama County	1
Los Molinos 1.	
Total	45

REPORT OF BUREAU OF VITAL STATISTICS.*

GEORGE D. LESLIE, Director.

State Totals and Annual Rates.—The following table shows for California as a whole the birth, death, and marriage totals for the current and preceding months in comparison with those for the corresponding months of last year, as well as the annual rates per 1,000 population represented by the totals for the current and preceding months. The rates are based on an estimated midyear population of 2,579,874 for California in 1912, the estimate having been made by the Census Bureau method with slight modifications.

Birth, Death, and Marriage Totals, with Annual Rates per 1,000 Population for Current and Preceding Months for California: September.

Month.	Monthly total.		Annual rate per 1,000 population: 1912.
	1912.	1911.	
September—			
Births -----	3,413	2,902	16.1
Deaths -----	2,630	2,532	12.4
Marriages -----	2,797	2,446	13.2
August—			
Births -----	3,288	3,129	15.0
Deaths -----	2,710	2,577	12.4
Marriages -----	2,619	2,303	12.0

The birth, death and marriage totals for September, as for preceding months, were much greater in 1912 than in 1911. The birth registration has been much greater each month this year than in the corresponding month of last year.

County Totals.—The first table which follows below shows the monthly birth, death, and marriage totals for the principal counties of the State, the list being limited to counties having a population of at least 25,000 according to the Federal Census of 1910. Totals are also shown for San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), as well as for Los Angeles and Orange counties together.

City Totals.—The second of the following tables gives the birth and death totals for the principal freeholders' charter cities, the list including all chartered cities with a census population of at least 15,000 in 1910. Totals are given likewise for San Francisco in comparison with Oakland, Alameda, and Berkeley, the three cities adjoining one another on the east shore of San Francisco Bay, as well as for Los Angeles in comparison with neighboring chartered cities (Long Beach, Pasadena, Pomona, and Santa Monica).

*NOTE.—The present report is for the month preceding, but one. This order must be followed hereafter because of the publication of the Bulletin during the early part of the month, before the tabulation of records for the preceding month is completed.

Birth, Death and Marriage Totals, for Principal Counties: September.

County.	September, 1912.		
	Births.	Deaths.	Marriages.
California	8,413	2,630	2,797
Counties of more than 25,000 population (1910):			
Alameda	844	273	283
Butte	47	35	38
Contra Costa	54	22	26
Fresno	140	71	81
Humboldt	50	21	40
Kern	54	22	44
Los Angeles	941	565	679
Marin	15	11	137
Orange	30	47	137
Riverside	59	44	40
Sacramento	122	95	103
San Bernardino	80	74	59
San Diego	61	94	112
San Francisco	564	480	514
San Joaquin	58	101	54
San Mateo	48	25	20
Santa Barbara	31	32	19
Santa Clara	123	96	68
Santa Cruz	28	31	26
Solano	22	14	20
Sonoma	63	55	37
Tulare	45	19	20
Selected groups:			
San Francisco and other bay counties.....	1,025	811	980
Los Angeles and Orange counties.....	971	612	816

Birth and Death Totals, for Principal Cities: September.

City.	September, 1912.	
	Births.	Deaths.
Freeholders' charter cities	2,133	1,612
Cities of more than 15,000 population (1910):		
Alameda	36	25
Berkeley	45	32
Fresno	64	21
Long Beach	36	17
Los Angeles	663	373
Oakland	228	166
Pasadena	45	27
Riverside	27	20
Sacramento	106	80
San Diego	35	71
San Francisco	564	480
San Jose	49	46
Stockton	30	70
Selected groups:		
San Francisco	564	480
Oakland, Alameda and Berkeley	309	223
Total, Bay cities	873	703
Los Angeles	663	373
Neighboring cities	110	61
Total	773	434

CASES ORDERED REFERRED TO DISTRICT ATTORNEYS SEPTEMBER 7, 1912.

Name of article.	Offense.	Manufacturer or jobber.	Accused dealer.	Locality.
Pork Sausage	Adulterated. Contains sulphur dioxide and substitution of foreign fat. Mislabeled. Contains cereal, not declared on label.		Kwong, Lung & Co.	San Francisco
Pork Sausage	Adulterated. Contains sulphur dioxide and substitution of foreign fat.		Royal Meat Market, Frank Pedelle	San Francisco
Lard	Adulterated. Contains sulphur dioxide, and substitution of foreign fat. Mislabeled. Contains foreign fat, not declared on label.		Sam'l Brown Meat Co.	Vallejo
Chopped Meat	Adulterated. Contains sulphur dioxide.		Herbert Brothers	Vallejo.
Sausage Meat	Adulterated. Contains sulphur dioxide.		Man Sang & Co.	Oakland
Ice Cream	Mislabeled. Below standard in butter fat.		Yokohama Restaurant	Los Angeles
Lemon Extract	Adulterated. Substitution of other materials. Mislabeled. Below standard in lemon oil.	S. O. Meyer Co., San Francisco.	Anspacher Brothers	Livermore
Honey	Adulterated. Contains more than 19 per cent commercial glucose.	S. O. Meyer Co., San Francisco.	Hawaiian Syrup & Extract Co.	San Francisco
Lemon Extract	Adulterated. Other material substituted for lemon extract.		M. J. Miller.	Oakland
Lemon Flavor	Mislabeled. Contains coal-tar color not declared on label		M. J. Miller.	Oakland
Cider Vinegar	Mislabeled. Not standard cider vinegar. Adulterated. (Other material substituted for cider vinegar.		E. Dionne	Los Angeles

The deaths from the three leading epidemic diseases reported for the month were distributed by counties as follows:

Typhoid fever.		Whooping-cough.		Malarial fever.	
Alameda	1	Alameda	3	Butte	1
Amador	1	Butte	1	Kern	1
Fresno	3	Fresno	1	Kings	2
Humboldt	1	Los Angeles	4	Placer	1
Imperial	2	Orange	1	Sacramento	3
Kern	1	Sacramento	1	San Francisco	1
Kings	1	San Bernardino	1	San Mateo	1
Los Angeles	4	San Diego	1	Shasta	1
Marin	1	San Francisco	2	Solano	1
Modoc	1	San Joaquin	1	Sonoma	1
Monterey	1			Tehama	1
Nevada	1	Total	16	Yuba	1
Riverside	2				
Sacramento	2			Total	15
San Francisco	4				
San Joaquin	2				
Santa Cruz	1				
Solano	1				
Sonoma	1				
Sutter	1				
Tulare	3				
Tuolumne	2				
Yolo	1				
Total	38				

Geographic Divisions.—The following table presents data for geographic divisions, including the metropolitan area, or San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), in comparison with the rural counties of Northern and Central California:

Deaths from Main Classes of Diseases, for Geographic Divisions: September.

Geographic divisions.	Deaths: September.										
	All causes	Epidemic diseases	Tuberculosis (all forms)	Cancer	Diseases of nervous system	Diseases of circulatory system	Diseases of respiratory system	Diseases of digestive system	Bright's disease and nephritis	Violence	All other causes
THE STATE	2,630	90	309	171	247	454	215	284	148	309	403
Northern California	299	14	31	15	25	59	24	26	13	42	50
Coast counties	138	4	15	9	19	26	15	8	7	15	20
Interior counties	161	10	16	6	6	33	9	18	6	27	30
Central California	1,451	54	151	109	127	251	116	156	83	187	217
San Francisco	480	9	48	43	35	101	40	54	22	48	80
Other bay counties	331	9	31	28	30	59	34	30	20	36	54
Coast counties	190	3	26	10	16	40	14	24	12	21	24
Interior counties	450	33	46	28	46	51	28	48	29	82	59
Southern California	880	22	127	47	95	144	75	102	52	80	136
Los Angeles	565	12	82	34	50	94	50	66	38	50	89
Other counties	315	10	45	13	45	50	25	36	14	30	47
Northern and Central California	1,750	68	182	124	152	310	140	182	96	229	267
Metropolitan area	811	18	79	71	65	160	74	84	42	84	134
Rural counties	939	50	103	53	87	150	66	98	54	145	133

Sex and Age Periods.—The proportion of the sexes among the 2,630 decedents in September was: Male, 1,648, or 62.7 per cent, and female, 982, or 37.3 per cent.

The following table shows the age distribution by numbers and per cents, of deaths classified by sex :

Deaths Classified by Sex and Age Periods, with Per Cents by Age Periods, for California: September.

Age period.	Deaths.			Per cent.		
	Total	Male.	Female.	Total	Male.	Female.
ALL AGES-----	2,630	1,648	982	100.0	100.0	100.0
Under 1 year-----	325	199	126	12.3	12.1	12.8
1 to 4 years-----	110	58	52	4.2	3.5	5.3
5 to 14 years-----	57	31	26	2.2	1.9	2.6
15 to 24 years-----	170	101	69	6.5	6.1	7.0
25 to 34 years-----	249	159	90	9.5	9.6	9.2
35 to 44 years-----	303	194	109	11.5	11.8	11.1
45 to 54 years-----	307	211	96	11.7	12.8	9.8
55 to 64 years-----	327	221	106	12.4	13.4	10.8
65 years and over-----	782	474	308	29.7	28.8	31.4

This table shows that relatively more females than males died at under 1 year, 1 to 4 years, 5 to 14 years, and 15 to 24 years, or at each age period under 25 years of age, as well as at 65 years and over, the period of old age.

Occupations.—The table below gives, for deaths 15 years and over, the number of men and women for whom some occupation was reported in contrast with those for whom no gainful occupation was shown :

Deaths, Fifteen Years and Over, Classified by Sex and Occupation, with Per Cents by Sex, for California: September.

	Deaths.			Per cent male.	Per cent female.
	Total.	Male.	Female.		
15 YEARS AND OVER-----	2,138	1,34	778	63.6	36.4
Occupation reported -----	1,222	1,15	67	94.5	5.5
No gainful occupation-----	916	20	711	22.4	77.6

Of the 1,222 decedents for whom occupations were reported the males numbered 1,155, or 94.5 per cent, and the females only 67, or 5.5 per cent.

The following table shows the distribution of male decedents 15 years and over, engaged in the main kinds of occupation :

Deaths of Males Fifteen Years and Over Engaged in Gainful Occupations, Classified by Kind of Occupation, with Per Cents, for California: September.

Kind of occupation.	Males 15 years and over.	
	Deaths.	Per cent.
ALL OCCUPATIONS	1,155	100.0
Professional	62	5.4
Clerical and official	87	7.5
Mercantile and trading	94	8.1
Public entertainment	23	2.0
Personal service, police and military	29	2.5
Laboring and servant	233	20.2
Manufacturing and mechanical industry	254	22.0
Agriculture, transportation and other outdoor	366	31.7
All other occupations	7	0.6

Of the 1,155 male decedents for whom occupations were reported 366, or 31.7 per cent, were engaged in agriculture, transportation, and other outdoor pursuits; 254, or 22.0 per cent, in manufacturing and mechanical industry; 233, or 20.2 per cent, in laboring and servant work; and altogether 302, or 26.1 per cent, in professional, clerical and official, mercantile and trading, and all other occupations.

REPORT OF BUREAU OF THE HYGIENIC LABORATORY FOR OCTOBER.

WILBUR A. SAWYER, M. D. Director.

Fraud in the Sale of Disinfectants.

Most absurd substances are constantly being sold to the public as germ-killers. Clever salesmen, misleading advertisements, and false labeling are responsible for the sale of a great variety of substances and devices, from aromatic oils to ozone machines, under claim that their vapors or gases will kill dangerous bacteria in the air which we breathe. The public will continue to waste its money until legislation makes it unsafe for any manufacturer of disinfectants to sell his goods under misrepresentation.

A few general principles, if kept in mind, will save much money to the purchasers of disinfectants:

1. Soap, hot water, mechanical cleansing, and the boiling of infected articles are important factors in keeping homes safe from disease. Disinfectants may be used in addition to these means, but not in their place.

2. No substance known will kill the bacteria in air, in the presence of living human beings, without injury to the latter. Therefore, claims that vapors or gases (ozone, etc.) will do this, are fraudulent.

3. Deodorants, if efficient, remove or conceal bad odors. Their function is purely aesthetic. They are generally used to conceal conditions which demand soap and water or fresh air. Deodorants may or may not have germicidal powers in addition.

4. Oils which will not mix readily with water are not adaptable to the common uses of disinfectants.

5. Purchasers of disinfectants should confine themselves as far as possible to simple unpatented substances and those few proprietary disinfectants whose strengths, in comparison with the strength of carbolic acid (phenol), are plainly stated on the label. The statement should be made numerically in terms of the "Hygienic Laboratory Phenol Coefficient." This coefficient is determined in accordance with rules laid down by the Hygienic Laboratory of the United States Public Health Service.

An example of the way the helpless public is being imposed upon has just come to the notice of the Laboratory. A sample of an oil, for which claims of germicidal power beyond that of any known substance were made, was examined for the State Board of Control. Apparently the manufacturers were not aware that disinfectants were being tested before they were purchased for State institutions. The label gave the information that a constant dripping of this oil into the bowls of closets or urinals would disinfect them and would also diffuse a pleasant odor which would kill contagious germs in the air, such as those of tuberculosis "and all kinds of fever."

Examination of the oil showed that dried typhoid bacilli could be soaked in it for at least sixteen hours and would remain alive. A water extract was made by shaking some of the oil with an equal part of distilled water for one hour. Typhoid germs were put into the *resulting* water-extract and were still alive at the end of fifty hours,

a little over two days. It is apparent that the oil has no value whatsoever as a disinfectant.

The principle that the public is to be protected against fraud where the individual is unable to judge for himself, has been established by the food and drug laws. Similar protection should be given by national and state legislation against fraud in the sale of disinfectants.

Division of Biological Examinations.

Summary of Examinations made in the California State Hygienic Laboratory during the month of October, 1912.

Condition suspected.	Negative.	Incon- clusive.	Total.
Main Laboratory at Berkeley:			
Anthrax	1		1
Diphtheria	32	50	82
Gonococcus infection	5	7	12
Hookworm		2	2
Malaria		9	9
Plague		1	1
Rabies	19	4	24
Tuberculosis	9	25	34
Typhoid	6	28	34
Water pollution	8	11	21
Miscellaneous	2	3	5
			225
Northern Branch at Sacramento:			
Diphtheria	4	16	20
Gonococcus infection	1		1
Malaria	1	3	4
Tuberculosis	1	2	3
Typhoid	10	6	16
			44
San Joaquin Valley Branch at Fresno:			
Diphtheria	5	14	22
Tuberculosis	2	4	6
Typhoid		1	1
			29
Southern California Branch at Los Angeles:			
Diphtheria	1	4	5
Typhoid		6	6
			11
Total number of examinations.....			309

Testing of Disinfectants.

Examinations of Disinfectants during the month of October, 1912.

Determinations of the Hygienic Phenol Coefficient..... 2

Division of Preventive Therapeutics.

Pasteur Treatment for the Prevention of Rabies by the State Hygienic Laboratory during the month of October, 1912.

	Treatment commenced.	Treatment completed.
Main Laboratory at Berkeley.....	3	3
Northern Branch at Sacramento.....	1	1
San Joaquin Valley Branch at Fresno.....	0	1
Southern Branch at Los Angeles.....	0	1
Laboratory of Sacramento Board of Health, by deputized bacteriologist	1	0
Laboratory of San Francisco Board of Health, by deputized bacteriologist	9	5
Laboratory of Los Angeles Board of Health, by deputized bacteriologist	0	0
Laboratory of Letterman German Hospital, Presidio, by deputized bacteriologist	1	0
	15	11

Public Health Instruction.

Participation in Instruction in Public Health during October, 1912.

Main Laboratory at Berkeley:	
Bacteriological instruction outfits sent out.....	2
Bacteriological instruction outfits in use.....	16
Lectures or talks by the Director.....	0

Division of Epidemiological Investigations.

Epidemiological Investigations during October, 1912.

Main Laboratory at Berkeley:	
Special investigations by the Director.....	3
Examination of ice supply in the Bay cities for sewage pollution.	
Investigation of a human case of suspected rabies in Alameda.	
Investigation of a fraudulent disinfectant.	
Special investigation by the Bacteriologist in charge of the Northern Branch	1
Investigation of rabies in Grass Valley and Nevada City.	

REPORT OF BUREAU OF FOODS AND DRUGS FOR OCTOBER, 1912.

M. E. JAFFA, Director.

Among the investigations carried on at the State Food and Drug Laboratory for the month of October, might be mentioned the examination of samples of ice collected in San Francisco and Oakland, from the respective manufacturers.

The details of the investigation are given below:

Special Report on Chemical Examination of Samples of Ice.

The data here reported were gathered at the request of Dr. Martin Regensburger, President of the State Board of Health.

Seven official samples of ice were collected, four from San Francisco and three from Oakland. Each of the official samples submitted to the Laboratory consisted of a large cake. A portion of the inner part was taken for bacteriological examination, as indicated by the report of the Director of the State Hygienic Laboratory.

For the chemical examinations, large pieces were rinsed with distilled water and allowed to melt in a clean container. The melted sample was analyzed chemically according to the standard methods of water analysis of the American Public Health Association.

The appended tabular statements summarize the chemical examinations made in connection with these samples. The results indicate that there is nothing objectionable from a chemical standpoint in any of the samples of ice analyzed. There is no evidence of contamination, and this is emphasized by there being practically no nitrates nor nitrites, and also by the low content of free and albuminoid ammonia. The limit of tolerance for albuminoid ammonia is between .15 and .2 parts per million. The corresponding figure for oxygen consumed is between 1 and 2 parts.

CASES ORDERED REFERRED TO DISTRICT ATTORNEYS SEPTEMBER 7, 1912.

Name of article.	Offense.	Manufacturer or jobber.	Accused dealer.	Locality.
Pork Sausage -----	Adulterated. Contains sulphur dioxide and substitution of foreign fat. Mislabeled. Contains cereal, not declared on label.	-----	Kwong, Lung & Co.-----	San Francisco
Pork Sausage -----	Adulterated. Contains sulphur dioxide and substitution of foreign fat.	-----	Royal Meat Market, Frank Pedelle -----	San Francisco
Lard -----	Adulterated. Contains sulphur dioxide, and substitution of foreign fat. Mislabeled. Contains foreign fat, not declared on label.	-----	Sam'l Brown Meat Co.-----	Vallejo
Chopped Meat -----	Adulterated. Contains sulphur dioxide-----	-----	Herbert Brothers -----	Vallejo.
Sausage Meat -----	Adulterated. Contains sulphur dioxide-----	-----	Man Sang & Co.-----	Oakland
Ice Cream -----	Mislabeled. Below standard in butter fat-----	-----	Yokohama Restaurant -----	Los Angeles
Lemon Extract -----	Adulterated. Substitution of other materials. Mis-labeled. Below standard in lemon oil.	S. O. Meyer Co., San Francisco.	Anspacher Brothers -----	Livermore
Honey -----	Adulterated. Contains more than 19 per cent commercial glucose.	S. O. Meyer Co., San Francisco.	Hawaiian Syrup & Extract Co. -----	San Francisco
Lemon Extract -----	Adulterated. Other material substituted for lemon extract.	-----	M. J. Miller-----	Oakland
Lemon Flavor -----	Mislabeled. Contains coal-tar color not declared on label	-----	M. J. Miller-----	Oakland
Cider Vinegar -----	Mislabeled. Not standard cider vinegar. Adulterated. Other material substituted for cider vinegar.	-----	E. Dionne -----	Los Angeles

CASES ORDERED REFERRED TO DISTRICT ATTORNEYS OCTOBER 5, 1912.

Whiskey -----	Adulterated. Substitution of other material. Mis- labeled. Contains water.	-----	A. Shapiro -----	Los Angeles
Coffee -----	Adulterated. Substitution of cereal and chicory. Mis- labeled. Substitution of cereal and chicory for coffee.	-----	Y. Y. Perez -----	Los Angeles.
Headache Tablets -----	Mislabeled. Contains acetanilid, not declared.	-----	W. A. Sloane -----	South Pasadena
Coffee -----	Adulterated. Substitution of cereal and chicory. Mis- labeled. Substitution of cereal and chicory for coffee.	-----	John Joseph -----	Los Angeles
Chopped Meat -----	Adulterated. Contains sulphur dioxide.	-----	Hanford Market, Sam H. Hird, Proprietor -----	Hanford
Pork Sausage -----	Adulterated. Contains sulphur dioxide, cereal and foreign meat food products. Mislabeled. Foreign material not declared on label.	-----	Hanford Market, Sam H. Hird, Proprietor -----	Hanford
Pork Sausage -----	Adulterated. Contains sulphur dioxide, and substitution of foreign fat.	-----	Phillip Staffan -----	Vallejo
Pork Sausage -----	Adulterated. Contains sulphur dioxide and substitution of foreign fat.	-----	Park Market -----	Fresno.
Pork Sausage -----	Adulterated. Contains sulphur dioxide.	-----	Palace Market -----	Fresno.
Chopped Meat -----	Adulterated. Contains sulphur dioxide.	-----	Scalli Brothers -----	Vallejo
Chopped Meat -----	Adulterated. Contains sulphur dioxide.	-----	Phillip Staffan -----	Vallejo
Chopped Meat -----	Adulterated. Contains sulphur dioxide.	-----	Thurber & Waterbury -----	Vallejo
Chopped Meat -----	Adulterated. Contains sulphur dioxide.	-----	Palace Market -----	Fresno.
Chopped Meat -----	Adulterated. Contains sulphur dioxide.	-----	F. Fitzmaurice -----	Vallejo
Chopped Meat -----	Adulterated. Contains sulphur dioxide.	-----	Knox Market -----	Napa
Chopped Meat -----	Adulterated. Contains sulphur dioxide.	-----	Bay City Market -----	Pacific Grove

THE CALIFORNIA STATE BOARD OF HEALTH.

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2. Bureau of Vital Statistics.

GEORGE D. LESLIE, PH.B., Director and Statistician.

Divisions: Reports; Official Records; Statistics.

3. Bureau of the Hygienic Laboratory.

WILBUR A. SAWYER, M.D., Director.

Divisions: Biological Examinations; Preventive Therapeutics; Epidemiological Investigations.

4. Bureau of Foods and Drugs.

MYER E. JAFFA, M.S., Director.

Divisions: Division of Inspections; Division of Laboratory Examinations; Division of Food and Drug Standards.

5. Bureau of Publications and Health Information.

GUY P. JONES, Acting Director.

Divisions: Division of Publications; Division of Information Correspondence; Division of Demonstrations and Lectures.

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Consulting Engineer for the Board-----University of California

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Division Bacteriologist and Field Officer-----Inverness Building, Sacramento

W. W. CROSS, M.D.

Division Bacteriologist and Field Officer-----Patterson Block, Fresno, California

STANLEY P. BLACK, M.D.

Division Bacteriologist and Field Officer-----Auditorium Building, Los Angeles

REGULAR MEETINGS.

The meetings of the California State Board of Health are held regularly the first Saturday of each month, but the quarterly meetings required by law to be held at the Capitol of the State are ordinarily designated as January, April, July, and October.

By courtesy of the University of California the Food and Drug Laboratory and the Hygienic Laboratory are located in University buildings at Berkeley, California.

Address all communications to the

SECRETARY, Sacramento, Cal.

DECEMBER BULLETIN.

IMPENDING HEALTH LEGISLATION.*

By WILLIAM F. SNOW, Secretary State Board of Health.

Again the time has come for the official gathering of the legislators whom we have chosen to represent us in the next biennial consideration of our laws and administrative needs. Since the session of 1911 closed much has occurred to bring health conservation before the people. The national political campaign of 1912 has crystallized the problems of human conservation in all its phases into a vital issue. Undoubtedly many bills directly or indirectly bearing upon the public health and the practice of medicine will be introduced during the first weeks of January. It behooves the health officers, the physicians, and the welfare workers generally to decide what is essential, what is immediately necessary, and what is undesirable in health legislation. The following comments on impending legislation are grouped for purposes of general discussion by the members of your association.

State Board of Health.

The State Board of Health is charged with five important divisions of administration: (1) General supervision of the enforcement of public health laws; (2) Collection of records of births, marriages, deaths, and communicable diseases; (3) Maintenance of standards of pure foods and drugs; (4) Laboratory assistance to health officers and physicians in diagnosing and preventing communicable diseases; (5) Prevention of pollution of streams and other sources of water supply. For the proper discharge of these duties already assigned to the Board a sum of \$190,940.00 for the next two years is necessary.**

In addition to its request for increased appropriations the Board of Health will ask for an amendment of the stream pollution law to cover discharge of sewage into bodies of salt water, and perhaps to cover all sewage disposal within the State. There are many municipal water supplies (which do not come under the control of the Railroad Commission) which should be supervised, so far as safety to health is concerned. A bill is proposed to cover this need.

The industrial occupation law will be brought forward for amendment in order to extend its provisions to a larger group of diseases and to perfect the details of its administration.

The authority of the State Board of Health over local boards and health officers will be reviewed. It is essential for further progress in lowering the death rate and preventing the spread of many diseases, that the standard of efficiency in administration of county and town health departments be greatly increased. To this end a bill providing for the licensing of candidates for positions with health departments is being considered. Another bill has been proposed along the lines of the vital statistics law, which gives the State Board of Health the

*Read before the Southern California Public Health Association, December 4, 1912, Los Angeles.

**A report submitted to the State Controller and the State Board of Control will be found printed elsewhere in this bulletin.

authority for approval of fees of local and county registrars before warrants may be drawn. A third plan has been advanced empowering the State Board of Health to investigate the work of any health officer and to order his salary withheld until the supervisors or trustees of jurisdiction make a thorough investigation and file a satisfactory report with the Board, the State in the mean time directing any necessary public health work, through its own representatives, as a charge against the county or city involved. To enforce this it has also been suggested that the half-mill tax now possible through motion of the county supervisors be made mandatory in order to create a working fund for health administration purposes.

In addition to working out bills for these needs the State Board of Health itself proposes to request the introduction of only one other important measure—the licensing of hospitals and operating room nurses within the State. Those of you who are familiar with the various types of industrial-camp hospitals, the great number of poorly equipped institutions for the sick and the dangerously incompetent hospital staffs of certain hospitals in the State, will realize without argument the importance of some standardization of these facilities for treatment and prevention of disease. In addition to this an inspection and licensing service would prevent the operation of many dishonest lying-in or other so-called hospitals now used to cloak charlatan practices. The State Board of Health is particularly interested in this bill as a step toward close coöperation between the Board and hospital superintendents in the early reporting and investigation of outbreaks of communicable diseases.

As a matter of duty the Board will again call the attention of the Legislature to the importance of replenishing the \$100,000 contagious diseases fund. The existence of rabies and poliomyelitis and the necessity of continuing the fight against bubonic plague are illustrations of the purposes and importance of this fund being available. In plague and rabies, however, the problem of control is entirely one of appropriations for the work, and it is not the function of the State Board to do more than explain clearly the gravity of the situation. The legislators have the right and must assume the responsibility for deciding whether these diseases are to be stamped out in California, or permitted to smoulder while our efforts are confined to checking so far as possible each blaze as it appears.

Sanitation Bills by Welfare Organizations.

It is probable that the anti-mosquito organizations will introduce some form of bill designed to further the fight against malaria. The bill which was introduced last year was considered too complicated and including nuisance mosquitoes as well as those carrying disease. The League of Municipalities has requested the Board of Health to prepare a bill requiring truthful statements concerning the value of foods and drugs as well as truthful statements of their chemical contents. The medical milk commissioners intend to ask for changes in the milk laws, and especially for specific regulations covering the transportation of milk in refrigerator express cars. The tenement house commissions *and other interested associations* will introduce bills relating to lodging-house inspection and licensing. These illustrate the types of a considerable number of bills which may be expected to be presented.

The State Tuberculosis Commission Report.

It is too early to predict just what legislation the Tuberculosis Commission of the State Board of Health will recommend, but it is probable that at least five points will be covered:

- (1) A dispensary system to provide early diagnosis and advice.
- (2) A system of local observation-wards for accurate determination of the prognosis and indicated treatment of selected cases.
- (3) A system of county or district hospitals for advanced cases requiring public aid.
- (4) A system of sanatoria, convalescent farms and work-colonies under State control, designed for definitely incipient and convalescent cases.
- (5) An extension of the present registration laws to specifically cover needed procedure in reporting and controlling tuberculosis.

Whatever administrative plan may be approved for adoption, it should include a strong State supervision of the entire work, and the assignment of the major part of the expense to towns and counties.

Bills for Control of Special Diseases.

From various sources it has been reported that a bill will be presented calling for a State institution to provide for the lepers which are now an expensive burden on a number of counties. As a matter of humanity and justice these unfortunate victims are deserving of an isolation home. There are about fifty known lepers in the State and possibly a number of others not known to the authorities. A State institution adapted to the needs of these cases could be provided at relatively small expense, and operated at less cost to the counties transferring their cases than the sums at present being expended.

From other sources will probably come a bill providing specific regulations designed to control and ultimately stamp out rabies. These and other questions concerning individual diseases are being carefully studied by prominent business men who see the necessity for effective administrative measures.

The introduction and spread of trachoma has been brought forward. There is evidence to indicate that this disease may be entering in part from Mexico and from Indian Reservations. The State Immigration Commission has added its influence in planning means for preventing the further introduction of hookworm and other tropical diseases. The Industrial Accident Board intends to introduce bills which will indirectly be of great benefit in reducing the prevalence of a number of diseases largely due to environment or occupation.

The Health Certificate for Marriage.

Among the important bills which will be introduced by the California Federation of Women's Clubs is one dealing largely with the prevention of innocent infections of women and children by syphilis and other diseases. This bill will provide for a health certificate to be filed by both the contracting parties prior to issuance of the marriage license. Without going into the details of the bills, it may be said that the simple requirement of an examination of both the man and the woman prior to marriage, will result in inestimable good; and *since the great majority of marriages are the result of genuine respect and affection the advice of the examiner will be followed or carefully*

verified by further consultation before marriage, even if the law itself is not actively enforced. The primary purpose of the bill is to protect the next generation from the expense and sorrow attendant upon the birth of defective children, and to make it certain that no person may marry and suffer or see loved ones suffer through ignorance of conditions which could have been known before marriage.

The Iowa Injunction and Abatement Act.

Of indirect value also to public health in this same direction is the bill to be introduced by the Women's Christian Temperance Union and supported generally by Women's Clubs and welfare organizations. This bill proposes definite machinery for stamping out all visible or readily detected places for prostitution and paves the way for adequate support of an efficient and sympathetic police force by the interested majority of citizens.

Whatever individuals may think of the theory of medical inspection and segregation of prostitutes, practical experience with the people shows that they will not dissociate the moral from the medical issue, and that nowhere in the world has segregation been tolerated as more than a half-way measure. The State Board of Health has been carrying on a limited study of this problem for the past year but has not yet published its report. It is patent, however, that in California there is no possibility of any general application of effective measures of supervising prostitution based on medical examination of men and women, and registration of the women in segregated districts. Since it is impossible to do this thoroughly, it is debatable whether the little good done by partial measures is worth while; or indeed, even justifiable in the light of the serious objections that may be raised on moral grounds.

Manifestly the people are no longer content to permit this insidious agency of disease and immorality to continue its work among us. Whether this abatement act is destined to succeed or not, the women who are brave enough to wage this campaign deserve the greatest credit and their statements should receive the thoughtful attention of every one who is genuinely interested in the public welfare.

State Law Versus Local Ordinance and Voluntary Observance.

The steady increase of commercial and social intercourse has so complicated the possibilities of disease transmission that personal liberty would be a thing of the golden past and modern business an impossibility, if a comprehensive attempt were made to protect all the people all the time from all the diseases that science has shown to be communicable from one person to others. It being conceded that this is impossible, it becomes necessary to decide from what diseases the people shall be protected by public authority, and what measures are justifiable in accomplishing this protection.

As basic principles the following are tenable propositions:

(1) It is desirable that the State should not do anything which the individual citizen or community understands and can do without assistance or undue hardship.

(2) Neither the State nor any city or town should deceive the *citizens* through acceptance of responsibility for protecting them from

disease, when neither the funds nor the authority for full protection are available.

(3) Preventable diseases should be carefully classified in relation to their importance, methods of communicability and cost of prevention or control. The distribution of responsibility between the State and the county and town, and between the town and the individual, should be based on these factors.

The control of the health factors in water supply, sewage disposal, milk and meat supply, food and drug purity, the collection of vital statistics, general administration of intercounty health matters are unquestionably state functions. The control of such important diseases as tuberculosis, typhoid fever, diphtheria, poliomyelitis and rabies is also clearly a matter of state duty.

The responsibility for the prevention and control of smallpox, except when it becomes an intercounty matter, is not so clearly a state duty, since every citizen has it within his power to protect himself and his family by vaccination. Malaria likewise is an important disease which is primarily a local rather than a state problem. Syphilis and gonococcus infections, while state-wide in prevalence, are to be administratively fought through local supervision, rather than through direct state control. Measles, whooping-cough, and severe "colds" are serious illnesses, particularly in children, but they are diseases which neither the state nor the county nor town health authorities can successfully combat. Only a very general and conscientious coöperation between school authorities and families can produce results with this class of diseases.

General Sanitary Axioms.

Major Ronald Ross, who won the Nobel prize for his discovery of the transmission of malaria by the *Anopheles* mosquito, outlines the following "Sanitary Axioms," as being applicable to the prevention of all diseases:

(1) Widespread diseases, especially endemic (*i. e.*, ever-present) diseases, cause much pain, sorrow, expense and loss of prosperity to the people.

(2) Next to the maintenance of the state, it is the duty of scientific governments to investigate the methods of propagation of these diseases, and to endeavor to control them.

(3) For economic reasons alone, governments are justified in spending for the prevention of such diseases a sum of money equal to the loss which the diseases inflict upon the people.

(4) The amount of money spent on the prevention of various diseases should, other things being equal, be proportioned to the amount of sickness and mortality caused by each.

(5) It is the duty of governments to make and enforce ordinances required for the prevention of diseases; and it is the duty of the people to comply fully with the provisions of these laws.

(6) Other things being equal, that sanitary measure is the wisest which causes the public the least inconvenience.

(7) Also, in general, that measure is the most practicable which can be carried out by governments without making any demands at all on the thoughts, efforts or compliance of private persons.

(8) As a rule, that measure is the most economical which confers, for unit of cost, the widest benefits on the public.

(9) For the prevention of diseases on a large scale a suitable expert organization is always required.

(10) It is always advisable to carry out accurate and repeated measurements of the prevalence of the disease which we propose to prevent; of the cost of the adopted measures, and of the results obtained.

No one can seriously challenge the soundness of these "Axioms," yet few health departments are supported or operated on any such clearly business-like basis. Until health officers organize their work along business lines, and learn how to present their cause in the language of commerce, they cannot hope to get adequate support.

Health Regulations—"1913 Models."

The advertising pages of magazines and papers are filled with interesting descriptions of the 1913 models of automobiles of every make. In fact, the 1913 "make" of any kind of instrument or machine will be very different from the 1900 or 1890 models. This only indicates to the public that we have made great strides in mechanical invention and construction. The same thing is true in public health and medicine. The 1913 model health ordinances ought to be a great improvement over those of 1890 or even 1912. The sciences dealing with the prevention and control of disease are making tremendous strides. Many public health practices are now obsolete or entirely unnecessary in the light of the most recent knowledge, and many ordinances that are very properly enforced to-day may give way within the next year to immeasurably better, simpler or less expensive ones. This is the experience in all science and practical business; and no advance in these directions in any way casts doubt on the original usefulness and soundness of the preceding practices.

The State Board of Health appointed a year ago a committee of fifteen on Standard Methods of Public Health Administration. This committee has been working on the "1913 California Models" for procedure in the control of communicable diseases, and its recommendations after adoption by the Board will shortly be issued for the guidance of health officers throughout the State. There will no doubt be some health officers and physicians as well as laymen who will not accept the new rules without opposition. The idea that the control of infectious diseases does not differ in general from the control of electricity must be popularized. Every schoolboy knows why the electrician who has occasion to touch any live wires at the street corner first stands on a little platform completely supported on glass legs. He will say it is to insulate the man so the electricity will not escape through his body to the ground. The glass is the substance which accomplishes this protection. This same schoolboy should also know that quarantine and isolation are medical terms that refer to methods for insulating diseases. And just as scientists are constantly learning new and better methods for handling and controlling electricity, so they are discovering new and better methods of controlling dangerous diseases. The people have not been taught these things. Anyone who has studied the practices of the doctors of to-day from this point of view must realize how few physicians, even, have clearly grasped the importance of real preventive medicine. It is a common experience to find doctors who ride in 1912 model automobiles advising the people that 1890 health protection laws are the proper thing.

Compulsory and Coöperative Obedience to Health Demands.

There is a vast difference between compulsion and coöperation in getting results in health conservation work. The pure food and drug laws strike a happy medium in this regard which should be extended

to other fields of health administration. The law compels producers and dealers to have all their foods and drugs properly and plainly labeled as to their composition, and forbids the sale of seriously harmful products under any conditions. Then it trusts to the voluntary coöperation of the people in encouraging those producers and manufacturers, who sell pure products. Legislation against the common drinking cup should be positive (*i. e.*, requiring the provision of facilities for drinking without using a common cup) rather than purely negative. The same is true of regulations concerning spitting and many other subjects. Every facility should be afforded the citizen, who wants to protect himself against disease, to do those things which will result in this protection, but there should be relatively few laws compelling him to do them. The few health laws which are compulsory should be clearly necessary for public protection, should be properly brought to the attention of the people, and then should be rigidly enforced.

A New Medical Law.

A brief reference to the subject of medical licensure is indirectly pertinent to this discussion. It is probable that a number of bills will be introduced amending or completely changing the California Medical Practice Act. It is evident to every student of local conditions of medical practice that our present method of a single impersonal written examination, conducted without any practical tests of the applicants' ability to diagnose actual cases, is little more than a memory test. This fact, coupled with the opportunity given any person to practice in any manner not specifically contra-indicated in the law, amounts practically to saying that only those who wish to sign drug prescriptions and practice surgery must measure up to the standard of preliminary and professional education established. This plan thus operates to place the emphasis on methods of treatment rather than on diagnosis, which should be the essential factor in safeguarding the citizens. The State spends over fifteen thousand dollars a year on the enforcement of the pure food and drug laws, and the people realize that this is a good investment. In the enforcement of laws providing protection against incompetent and dishonest practitioners of medicine, and regulations requiring proper sanitation and equipment of doctor's offices, the State spends not one dollar by direct appropriation. Yet the proper enforcement of practical medical laws is relatively of far greater importance to the welfare of the people than enforcement of pure food laws.

A number of bills upon this difficult problem are in course of preparation. Inasmuch as the great majority of health officers are medical graduates, and by reason of their position should understand the needs and viewpoint of the people better than other physicians, it is desirable that they should study this question and lend their active support to those bills which are clearly drawn in the interests of the people.

In Conclusion.

In conclusion it is well to remember that all progress is largely a matter of slow growth. The rapid development of certain phases of public welfare work, as a rule, marks only the final stage of work which has developed like the mushrooms, slowly underground until the

final day for completion. Undoubtedly the subjects for legislation which I have mentioned, and others of similar portent, are important and timely. Some of them will pass, but others will fail for a variety of reasons which can not be foreseen. These failures should be experience lessons and stimulants to renewed effort, rather than evidence of indifference of the legislators or the people. Those bills which pass will lay a heavy burden of responsibility on their proponents to see that honest and efficient administrative effort is made to give them effect.

THE APPROPRIATION NEEDS OF THE STATE BOARD OF HEALTH FOR 1913-15.

The following facts should be given weight in considering the attached tabulation of appropriations for the State Board of Health:

The People Recognize the Need for a State Department of Health.

The people of California recognize the importance of Health Conservation and have expressed their will by enacting laws providing a State Board of Health in 1870, and by placing in the Constitution of 1879 this clause, "The legislature shall provide, by law, for the maintenance and efficiency of a State Board of Health" (art. XX, sec. 14). Periodically since the enactment of the first statutes giving effect to these acts the people have added to the duties of this board. In 1905 the collection and tabulation of vital statistics was added; in 1907 the enforcement of pure food laws was assigned to the Board; in 1909 the hygienic laboratory was reorganized and given added duties; in 1911 the active enforcement of the stream pollution laws was specifically assigned to the board. In no sense have the additions to the financial support of the Board kept pace with the greatly increased demands of an awakening public sentiment in favor of health protection for human beings.

Five Important Divisions of the State Board of Health.

The total budget herewith submitted in reality covers five divisions of state control, *i. e.*:

(a) General supervision of health administration, quarantine, serious nuisance abatement and emergencies throughout the State.

(b) Provision of laboratory diagnosis and other laboratory aids for physicians and health officers in controlling outbreaks of communicable diseases.

(c) The direct enforcement of pure food and drug laws throughout the State.

(d) Responsibility for investigation and authorization of such stream pollution as may not be harmful to health, and prohibition of harmful pollution of water supplies.

(e) Responsibility for the collection, tabulation and filing for legal use, of all births, deaths, marriages, and reports of communicable occupational and other diseases of importance to the preservation of the public health.

These are all major divisions of the duties assigned to the Board of Health. Considered in this light the budget attached asks for an average of less than \$20,000 a year for each division.

State Board Has Not Been Adequately Financed in the Past.

While this budget asks for an immediate increase of approximately 100 per cent over the 1911 appropriation, two facts should be borne in mind:

(a) Health administration yields the greatest returns through large appropriations at the beginning, rather than through a slowly increasing budget. This is so because the evils it is designed to overcome are already large and well organized for making victims among the people, and only the establishment of a sufficiently large and powerful combative force can yield quick results.

(b) In asking for a biennial appropriation of \$190,940 the State Board of Health is only asking to be placed more nearly on the basis of efficiency already recognized as essential for state departments dealing with the conservation and promotion of the health of animals, orchards and farming crops. Although the argument is justifiable, the board is not asking that appropriations to this department be disproportionately increased over other departments, because protection of human health is more important than protection of the health of animals or plants.

State Board of Health Needs Immediate Increase.

The following facts are pertinent:

(a) All the people, all of the time, are concerned in the prevention of communicable diseases and the promotion of higher standards of healthful living.

(b) In practically all other departments of state government, the work of the state department is supplemented or made effective through extensive county and city appropriations and provisions for local officials. In public health, except for a few of the larger cities, no adequate appropriations or organization exists for even the most urgent essentials of administration. This renders the proper equipment of the State Board of Health the more imperative.

(c) The population of the State increased 60 per cent between 1900 and 1910, and the demands of the people for aid from the State Board of Health have kept pace with this increase. Since 1905 there has been an increase from 70,000 birth, death and marriage certificates to 110,000 per year. This means collecting, tabulating, indexing, filing and binding over 220,000 legal records each biennial period in this one division of the board's work. There are approximately 13,000 stores in California that are subject to the provisions of the food and drug acts. The support fund of the Food and Drug Laboratory provides approximately \$1.15 per year for inspection of each of these (13,000) stores. Each of the four inspectors now available would have to visit an average of ten stores per day, exclusive of time for travel, reports and court testimony, in order to cover all these stores once a year. This is an impossibility. Obviously the people intended better administrative service than this in the enforcement of the pure food and drug laws.

(d) In the past few years there has been a very marked increase in the number of cities and towns that have installed water supplies and sewerage systems. In line with older states noted for advanced legislation, California passed in 1911 an excellent stream-pollution law.

The State Board of Health now has 123 applications on file for investigation and approval of sewerage systems, but has no appropriation for a sanitary engineer to make effective the purposes of the law. The great growth of summer hotels, mountain homes, canneries and industrial camps sewerage into our beautiful mountain streams and lakes, has greatly increased the work which should be done. The commercial value of a careful survey of medicinal and other values of the mineral springs of the State is very great, and warrants the request made for appropriations to cover the work.

(e) The appearance of rabies and other diseases from which California has until recent years been free and the rapid development of new laboratory methods of early diagnosis of communicable diseases has increased the field of work of the hygienic laboratory many fold.

(f) The demands of the people themselves for information and accurate data on standards of health and methods of prevention of disease have enormously increased the correspondence and popular education work of the Board.

These are some of the things which confront the Board.

The Financial Value of the State Board of Health.

The financial value of the State Board of Health's work may be illustrated in a number of ways:

(a) For example, California's public health expenditures in comparison with several other states active in health conservation work are as follows: Pennsylvania provides 31.7 mills per \$100 of assessed valuation of taxable property, which provides an annual fund of \$1,828,624 to administer health conservation work for only 6,000,000 people (Philadelphia, Pittsburg, and several smaller cities have local health departments in addition to this, but depend on the state for tuberculosis sanatorium facilities). Florida appropriates 88.20 mills per capita, which provides \$75,000 per year on a basis of 42.20 mills per \$100 of assessed valuation of taxable property. Massachusetts provides an annual fund of \$302,000 for a population less than one third larger than that of California. The Massachusetts appropriation is 63.2 mills per \$100 of assessed valuation. A tabulation of all the states of the Union shows California to rank fortieth in per capita appropriation for its State Board of Health, and thirty-fifth according to appropriation per \$100 of assessed valuation. The California figures are: 21.17 mills per capita; 2.30 mills per \$100 assessed valuation; 2,579,874 population; \$2,337,379,750 assessed valuation.

For a State which ranks eighth in per capita wealth in the entire forty-eight states and has less real poverty than any other state, these figures suggest either that preventable diseases are much less prevalent here, or that the California legislature has not seen as clearly as have other legislatures how important health conservation has become. The vital statistics' records refute the first suggestion. It remains for the next legislature to place California among the states pursuing a thoroughly business-like policy in preventing disease and death.

(b) It is also possible to show direct results of the activities of the Board, in terms of money saved the citizens of the State. Rabies has been permitted to extend to almost every part of the State and many persons have been bitten by rabid dogs or other animals. During the

past twenty-four weeks alone (since the Board began the preparation of anti-rabic virus) ninety persons have applied for this preventive treatment, presenting evidence to show they could not pay the \$100 or more required for treatment by private physicians. There has thus been a saving of \$9,000 to county and city governments in this one source of public expense during the past six months.

There has been a slowly decreasing death rate from typhoid fever in spite of a rapidly increasing population. The typhoid deaths have decreased as follows: 657 (1906), 558 (1907), 540 (1908), 461 (1909), 477 (1910), 447 (1911), 435 (1912). On any basis of valuation of human life and estimate of the costs of doctors, nursing and drug bills, this lowering of the death totals for typhoid fever represents a saving of several millions of dollars. Similar illustrations could be prepared for a number of other diseases.

The enforcement of the pure food and drug laws has also saved the people millions of dollars through forcing from the market adulterated and low grade or harmful products. The legal value and saving of litigation through the filing and indexing of marriages, births, and deaths can be estimated in large figures representing money values. The general administrative work of the Board in aiding local communities to trace down and check outbreaks of disease is worth many thousands of dollars every year.

Duplication of Expense in Public Health Administration.

Public health administration in California is based on the town and county as units, but obviously many matters are of state-wide importance and must be administered by central state authority. There must always be a strong supervisory control of all local health officials vested in the State Board of Health. The growth of great cities and the development of transportation facilities have converted the control of meat, milk, vegetable and water supplies into state problems. At the present time the cities of California are probably expending a sum for self protection through inspection in these fields which, if properly expended by the State, would provide protection for the entire population. But under present conditions these cities get only partial protection and the smaller towns and rural districts receive practically no protection. The Board does not include any items to cover this need, except that the additional support for the Food and Drug Laboratory and the Hygienic Laboratory would permit of periodic surveys being made of the counties, and the publishing of the facts concerning each survey.

The Newer Demands.

It would seem apparent from the party platforms and campaign speeches during this year, that health conservation has at last received national recognition, and will find its proper place in the legislator's list. If the time has really come when the legislature is composed of representatives of the people, who believe that the supreme duty of the State is the conservation of human resources through an enlightened measure of social and industrial justice; and who intend to enact legislation, fixing minimum standards of safety and health for occupations, *and protecting homes against the hazards of sickness, irregular employ-*

ment and old age; then the claims of the State Board of Health presented herewith will receive recognition as sound and will be granted, or met by provisions believed to be more effective. The Board has not asked for itself any research fund, but believes that an appropriation, to the Board of Health or to some other state agency, should be made for the purpose of investigating and reporting on standards of health and of industrial conditions bearing upon the health of California's working men and women.

Adequate Salaries.

The salaries specified for consideration are carefully based upon an average of salaries now being paid for similar positions elsewhere. California is fortunate in having in the employ of the State Board of Health, officers who are not only recognized for their ability, but are frequently in receipt of offers from other states or private enterprises. If the State expects to hold men and women in its service, such employees as are sought for and retained by successful commercial enterprises, commensurate salaries must be paid. The Secretary's office maintains a speed and volume efficiency check on the work done by each officer and employee of the Board. The salaries proposed are considered a conservative estimate of what is just and necessary to retain competent persons in the State's service. Complete data upon each position with the Board are available.

This statement covers only the immediate needs of the Board for work actually assigned by the legislature in specific laws, and demanded by the public as shown in the daily correspondence and requests received. No mention is made of the tuberculosis or other special problems, which the State must in time intelligently provide for. These are matters for special consideration. As a recommendation distinct from this statement of the routine needs of the Board, attention is drawn to the great need of replenishing the Contagious Disease Fund. This fund, originally placed at \$100,000, is exhausted. It is vitally important to the commercial as well as health interests of California, that active coöperation with the United States Government in eradicating plague-infected squirrels be continued. Other dangerous diseases may at any time appear necessitating prompt action for which an emergency fund is necessary.

In conclusion, the Board presents only one future need. The offices and laboratories, both in Sacramento and the University of California, are entirely inadequate. New quarters or a fund for rent must be considered by this Legislature, if a proper standard of efficiency is to be maintained.

Respectfully submitted.

CALIFORNIA STATE BOARD OF HEALTH.

Addressed:

The State Board of Control.

The State Controller.

Recapitulation of Entire Budget of General Appropriations for California State Board of Health.

Items.	Approved biennial appropriations, 1911.	Proposed biennial appropriations, 1913.		Increase.
		Renewal.	New.	
1. Statutory -----	\$41,800	\$46,400	\$27,200	\$31,800
Per year -----	20,900	23,200	13,600	15,900
2. Hygienic laboratory -----	20,000	19,940	11,400	11,340
Per year -----	10,000	9,970	5,700	5,670
3. Pure food and drug laboratory--	30,000	42,900	15,400	28,300
Per year -----	15,000	21,450	7,700	14,150
4. Traveling and contingent-----	6,000	7,500	-----	1,500
Per year -----	3,000	3,750	-----	750
5. Printing and binding-----	6,000	11,450	3,550	9,000
Per year -----	3,000	5,725	1,775	4,500
6. Investigation occupational diseases -----	400	400	600	600
Per year -----	200	200	300	300
7. Support fund for engineering-----	-----	-----	2,000	2,000
Per year -----	-----	-----	1,000	1,000
8. Purchase new equipment-----	-----	-----	2,200	2,200
Per year -----	-----	-----	1,100	1,100
Totals -----	\$104,200	\$128,590	\$62,350	\$86,740
Per year -----	52,100	64,295	31,175	43,370
Total renewal and new-----	-----	-----	\$190,940	-----
Renewal and new per year-----	-----	-----	95,470	-----

Special Appropriations for Consideration.

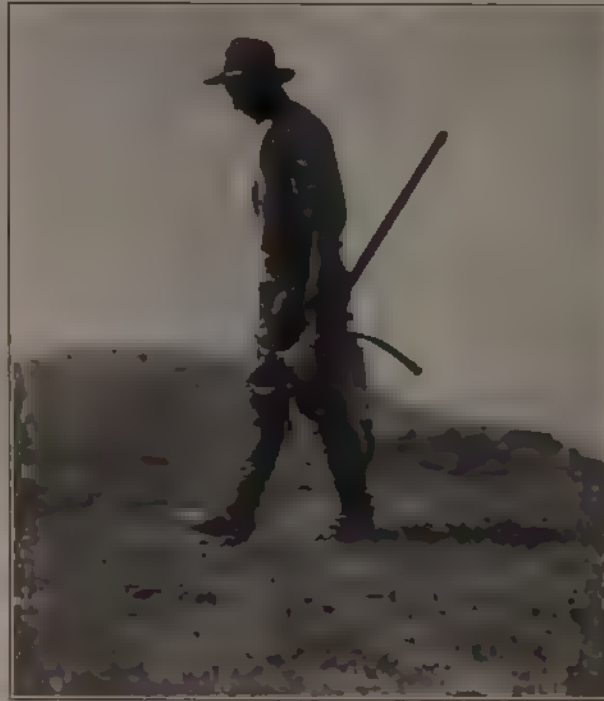
Items.	Approved biennial appropriations, 1911.	Proposed biennial appropriations, 1913.		Increase.
		Renewal.	New.	
Tuberculosis investigation -----	\$5,000	-----	-----	-----
Social hygiene investigation and educational work -----	-----	-----	\$5,000	\$5,000
Contagious diseases and squirrel eradication -----	*10,000	\$100,000	-----	90,000
Total special appropriations---	\$15,000	\$100,000	\$5,000	+\$95,000

*Deficiency.

A SQUIRREL DESTROYER.

By J. D. LONG, A.M., M.D., Passed Assistant Surgeon, U. S. Public Health Service.

As a result of a series of experiments carried out under the joint supervision of Passed Assistant Surgeons D. H. Currie, French Simpson, and the writer, at the Laboratory of the U. S. Public Health Service, San Francisco, Cal., for the purpose of discovering some means for the effective destruction of ground squirrels in California.



to assist in the eradication of bubonic plague, the writer was enabled to devise the apparatus shown herewith, which permits of the practical application of the principles learned from the experiments.

The experiments established the fact that a vapor of carbon bisulphide of from 1 per cent to 2 per cent strength will kill ground squirrels, in a confined space, in from thirty to forty-five minutes. The animal experiences no discomfort, and does not struggle or make an effort to escape, but dies in practically the same manner as does an animal that has been exposed to the vapor of chloroform.

The machine shown below is constructed principally of galvanized iron, 18 gauge. The height from the ground to the top of the pump cylinder is 18 inches, and its extreme width is 12 inches, the weight with the reservoir filled with bisulphide ($1\frac{1}{2}$ gallons) is 25 pounds. *the only tool needed in addition to the machine is an ordinary mattock to be used in filling the holes*

The apparatus is used as follows: Insert the hose in the squirrel burrow, to a depth of one foot at least, then turn the stopcock on the measuring device and allow one half ounce of bisulphide to run from the reservoir into the cup; then turn the stopcock till the handle points downward, thus closing off the reservoir and allowing the liquid to flow into the vaporizing chamber. While the charge is running into the vaporizing chamber, dig the hole shut with the mattock, then pump thirty strokes (15 double strokes, the pump is double action), withdraw hose from burrow, close hole left by hose with the heel, and the operation is complete. The time necessary for the complete operation is one minute or less. Thirty strokes will deliver 12 cubic feet of a 1.5 per cent carbon bisulphide vapor into the hole, which should kill the squirrel in about one half hour, providing the animal is in the burrow when the gas is pumped in.

Refined bisulphide only is used in the machine, as the crude product will rapidly corrode the metal of which the machine is made.



The field tests, so far made, have indicated that one man can treat from 30 to 40 burrows per hour, which is equivalent with average infestation to about 20 or 25 acres of land per day of eight hours.

Ninety-five per cent of the holes treated, if properly treated, will not be opened, indicating that the squirrel is dead; the remaining 5 per cent will need to be treated a second time, as it sometimes happens that the squirrel is absent from the burrow when the same is treated, and will open it upon his return.

While further observations will be needed to determine definitely the average cost per acre of squirrel eradication, by this method, it is estimated that the work can be done for approximately twenty-five cents (\$.25) per acre, while with poisoned grain, the average cost is thirty-five cents (\$.35), and with carbon bisulphide by the waste ball method, the cost varies from sixty-five (\$.65) to seventy-five (\$.75) cents per acre.

REPORT OF BUREAU OF ADMINISTRATION.

JOHN F. LEINEN, Director.

Executive Division.

The table below indicates something of the amount and variety of correspondence subjects and the volume of mail handled by this division of work. The letters written are considered from the same point of view as those written from a commercial firm. Brevity must be the keynote in this bureau, as it is in the business office. Many persons fail to appreciate this, and expect the staff of the health department to have ample time to do things or make replies which would never be demanded in commerce. It is the policy of the Board to have all letters answered, or acknowledged, the same day they are received. Many letters, however, require considerable investigation or reference to other bureaus before final reply can be made.

In so far as possible a personal reply is made to every inquiry, although it is sometimes necessary only to mail a printed bulletin or a marked copy of a report. The purpose of the Board in publishing this summary each month is to illustrate the necessity that is connected with its work, to provide a central office commensurate with that of many large business houses.

Table showing volume of executive work during November, 1912.

Items.	Total.	No. of subjects.	Adminis- tration.	Morbidity.	Inter- bureau.	Miscel- laneous.
Letters received -----	1,775	180	690	400	490	195
Letters sent -----	1,868	180	710	452	520	186
Report blanks sent -----	1,756	11	156	1,450	150	-----
Reports received -----	1,606	16	156	1,200	250	-----
Press clippings, bulletins and newspapers received -----	1,525	35	300	750	325	150
Accounts audited -----	160	-----	22	-----	138	-----
Estimates approved, items -----	158	-----	20	-----	138	-----
Checks issued -----	29	-----	14	-----	15	-----
Miscellaneous letters advising local health officers and com- munities -----	211	22	49	92	50	20
General orders issued to depart- ment staff -----	32	4	24	-----	8	-----
Public health literature and bul- letins sent to the public -----	55,575	-----	350	-----	55,225	-----
Grand totals -----	64,695	-----	2,491	4,344	57,309	551

Legal Division.

In addition to the legal work connected with the preparation and hearing of 52 cases of food and drug violations, this division has rendered decisions on the following important matters, viz.:

- Laws governing clinical autopsies;
- Laws governing anatomical dissection;
- Securing authority for transportation of anatomical material;
- Examination by city boards of health for applicants for plumber's license;
- Jurisdiction of State Board of Health over examinations of applicants for plumber's license.

The attorney for the Board has been directed by the Board to draw up proper bills on the matters for State Board of Health legislation, which have been outlined elsewhere in this bulletin.

Division of Sewage Disposal.

The consulting engineer has been in the field the entire month making observations and securing data for the final consideration of sewerage plans for a large number of towns and cities, that have filed applications under the 1911 stream pollution law. No report is ready for publication at this time.

Division of Morbidity Returns.*Morbidity report for November, 1912.*

Disease.	Cases.	Places.
Rabies (human)	1	1
Poliomyelitis	12	8
Smallpox	26	9
Diphtheria	173	33
Scarlet fever	142	28
Typhoid fever	98	19
Pneumonia	47	9
Tuberculosis	206	14
Whooping-cough	20	3
Chicken-pox	159	12
Gonorrhea	5	3
Syphilis	2	2
Mumps	188	6
Malaria	9	2
Influenza	2	1
Measles	31	7
Erysipelas	13	6
Cerebro-spinal meningitis	4	3
Ringworm	1	1
German measles	1	1
Scabies	1	1
Tetanus	1	1
Totals.....	1,142	170

REPORT OF BUREAU OF VITAL STATISTICS.*

GEORGE D. LESLIE, Director.

State Totals and Annual Rates.—The following table shows for California as a whole the birth, death and marriage totals for the current and preceding months in comparison with those for the corresponding months of last year, as well as the annual rates per 1,000 population represented by the totals for the current and preceding months. The rates are based on an estimated midyear population of 2,579,874 for California in 1912, the estimate having been made by the Census Bureau method with slight modifications.

Birth, Death and Marriage Totals, with Annual Rates per 1,000 Population for Current and Preceding Months for California: October.

Month.	Monthly total.		Annual rate per 1,000 population: 1912.
	1912.	1911.	
October—			
Births -----	3,352	3,169	15.8
Deaths -----	2,992	2,590	18.7
Marriages -----	2,907	2,516	18.7
September—			
Births -----	3,413	2,902	16.1
Deaths -----	2,630	2,532	12.4
Marriages -----	2,797	2,446	13.2

The birth, death and marriage totals for October, as for preceding months, were much greater in 1912 than in 1911. The birth registration has been much greater each month this year than in the corresponding month of last year.

County Totals.—The first table which follows below shows the monthly birth, death and marriage totals for the principal counties of the State, the list being limited to counties having a population of at least 25,000 according to the Federal Census of 1910. Totals are also shown for San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), as well as for Los Angeles and Orange counties together.

City Totals.—The second of the following tables gives the birth and death totals for the principal freeholders' charter cities, the list including all chartered cities with a census population of at least 15,000 in 1910. Totals are given likewise for San Francisco in comparison with Oakland, Alameda, and Berkeley, the three cities adjoining one another on the east shore of San Francisco Bay, as well as for Los Angeles in comparison with neighboring chartered cities (Long Beach, Pasadena, Pomona, and Santa Monica).

*NOTE.—The present report is for the month preceding, but one. This order must be followed hereafter because of the publication of the Bulletin during the early part of the month, before the tabulation of records for the preceding month is completed.

Birth, Death and Marriage Totals, for Principal Counties: October.

County.	OCTOBER, 1912.		
	Births.	Deaths.	Marriages.
California	8,352	2,992	2,907
Counties of more than 25,000 population (1910):			
Alameda	374	815	264
Butte	46	37	23
Contra Costa	45	27	16
Fresno	129	102	91
Humboldt	38	29	19
Kern	39	38	48
Los Angeles	938	712	692
Marin	33	31	124
Orange	30	39	112
Riverside	49	38	37
Sacramento	93	93	95
San Bernardino	65	78	37
San Diego	102	91	108
San Francisco	600	564	585
San Joaquin	46	91	71
San Mateo	23	36	35
Santa Barbara	26	24	20
Santa Clara	90	122	110
Santa Cruz	24	31	24
Solano	30	24	18
Sonoma	41	50	42
Tulare	35	29	26
Selected groups:			
San Francisco and other bay counties.....	1,075	973	1,024
Los Angeles and Orange counties.....	968	751	804

Birth and Death Totals, for Principal Cities: October.

City.	OCTOBER, 1912.	
	Births.	Deaths.
Freeholders' charter cities.....	2,164	1,799
Cities of more than 15,000 population (1910):		
Alameda	36	25
Berkeley	50	44
Fresno	53	32
Long Beach	21	20
Los Angeles	669	457
Oakland	262	179
Pasadena	50	61
Riverside	27	20
Sacramento	70	81
San Diego	73	67
San Francisco	600	564
San Jose	34	35
Stockton	25	37
Selected groups:		
San Francisco	600	564
Oakland, Alameda and Berkeley.....	348	248
Total, bay cities	948	812
Los Angeles	669	457
Neighboring cities	103	98
Total	772	555

Causes of Death.—The following table shows the classification of deaths in California for the current month, in comparison with the preceding month:

Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths for Current and Preceding Month, for California: October.

Cause of death.	Deaths: October.	Proportion per 1,000.	
		October.	September.
ALL CAUSES	2,992	1,000.0	1,000.0
Typhoid fever	51	17.0	14.4
Malarial fever	18	6.0	5.7
Smallpox			0.4
Measles			0.4
Scarlet fever	3	1.0	0.4
Whooping-cough	9	3.0	6.1
Diphtheria and croup	8	2.7	1.9
Influenza	1	0.3	1.5
Other epidemic diseases	21	7.0	3.4
Tuberculosis of lungs	297	99.3	98.5
Tuberculosis of other organs	61	20.4	19.0
Cancer	197	65.8	65.0
Other general diseases	123	41.1	44.1
Meningitis	24	8.0	8.7
Other diseases of nervous system	246	82.2	85.2
Diseases of circulatory system	530	177.1	172.6
Pneumonia and broncho-pneumonia	201	67.2	63.9
Other diseases of respiratory system	58	19.4	17.9
Diarrhea and enteritis, under 2 years	122	40.8	39.5
Diarrhea and enteritis, 2 years and over	40	13.4	11.4
Other diseases of digestive system	190	63.5	57.0
Bright's disease and nephritis	184	61.5	56.3
Childbirth	34	11.4	10.3
Diseases of early infancy	114	38.1	47.9
Suicide	70	23.4	24.0
Other violence	265	88.6	93.5
All other causes	125	41.8	51.0

In October there were 530 deaths, or 17.7 per cent of all, from diseases of the circulatory system, and 358, or 12.0 per cent, from various forms of tuberculosis. Heart disease thus led tuberculosis greatly, as for some months past.

Other notable causes of death were: Diseases of the digestive system, 352; violence, 335; diseases of nervous system, 270; diseases of respiratory system, 259; cancer, 197; Bright's disease and nephritis, 184; and epidemic diseases, 111.

The deaths from epidemic diseases were as follows: Typhoid fever, 51; malarial fever, 18; whooping-cough, 9; diphtheria and croup, 8; and all other epidemic diseases, 25.

The deaths from the four leading epidemic diseases reported for the months were distributed by counties as follows:

Typhoid Fever.		Malarial Fever.		Whooping-cough.	
Alameda	5	Butte	2	Imperial	1
Butte	1	Colusa	1	Sacramento	1
Colusa	1	Fresno	1	San Bernardino	1
Contra Costa	1	Los Angeles	1	San Francisco	6
Fresno	7	Nevada	1	Total	9
Kings	1	Orange	2		
Los Angeles	7	San Francisco	3		
Modoc	1	Shasta	1		
Monterey	1	Stanislaus	1		
Orange	2	Sutter	1		
Placer	1	Tulare	1		
Sacramento	3	Ventura	1		
San Bernardino	1	Yuba	2		
San Diego	1	Total	18		
San Francisco	5				
San Joaquin	2				
San Mateo	1				
Santa Clara	1				
Solano	1				
Sonoma	1				
Stanislaus	2				
Tulare	4				
Tuolumne	1				
Total	51				

Diphtheria and croup.	
Alameda	1
Amador	1
Fresno	1
Los Angeles	1
San Bernardino	1
San Francisco	3
Total	8

Geographic Divisions.—The following table presents data for geographic divisions, including the metropolitan area, or San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), in comparison with the rural counties of Northern and Central California:

Deaths from Main Classes of Diseases, from Geographic Divisions: October

Geographic division.	DEATHS OCTOBER.										
	All causes.	Epidemic diseases.	Typhoid (all forms).	Cancer.	Diseases of nervous system.	Diseases of circulatory system.	Diseases of respiratory system.	Diseases of digestive system.	Bright's disease and nephritis.	Violence.	All other causes.
THE STATE	2,992	111	358	197	270	530	259	352	184	335	396
Northern California	309	20	30	21	19	52	25	29	20	48	45
Coast counties	174	7	14	13	12	27	12	17	12	37	23
Interior counties	135	13	16	8	7	25	13	12	8	11	22
Central California	1,664	64	174	110	159	309	151	209	92	182	214
San Francisco	564	17	61	44	53	128	40	71	26	55	69
Other bay counties	409	10	44	23	36	80	47	49	22	42	56
Coast counties	192	3	23	14	29	36	18	24	11	12	22
Interior counties	499	34	46	29	41	65	46	66	33	73	67
Southern California	1,019	27	154	66	92	169	83	114	72	105	137
Los Angeles	712	14	110	51	59	120	64	80	50	68	96
Other counties	307	13	44	15	33	49	19	34	22	37	41
Northern and Central California	1,973	84	204	131	178	361	176	238	112	230	259
Metropolitan area	973	27	105	67	89	208	87	120	48	97	125
Rural counties	1,000	57	99	64	89	153	89	118	64	133	134

Sex and Age Periods.—The proportion of the sexes among the 2,992 decedents in October was: Male, 1,887, or 63.1 per cent, and female, 1,105, or 36.9 per cent.

The following table shows the age distribution by numbers and per cents, of deaths classified by sex:

Deaths Classified by Sex and Age Periods, with Per Cents by Age Periods, for California: October.

Age period.	Deaths.			Per cent.		
	Total.	Male.	Female.	Total.	Male.	Female.
ALL AGES.....	2,992	1,887	1,105	100.0	100.0	100.0
Under 1 year.....	348	198	150	11.6	10.5	13.6
1 to 4 years.....	134	86	48	4.5	4.6	4.3
5 to 14 years.....	63	36	27	2.1	1.9	2.4
15 to 24 years.....	188	112	76	6.3	5.9	6.9
25 to 34 years.....	306	188	118	10.2	10.0	10.7
35 to 44 years.....	336	219	117	11.2	11.6	10.6
45 to 54 years.....	393	285	108	13.2	15.1	9.8
55 to 64 years.....	374	253	121	12.5	13.4	10.9
65 years and over.....	850	510	340	28.4	27.0	30.8

This table shows that relatively more females than males died at under 1 year, 5 to 14 years, and 15 to 24 years, or at practically each age period under 25 years of age.

Occupations.—The table below gives, for deaths 15 years and over, the number of men and women for whom such occupation was reported in contrast with those for whom no gainful occupation was shown.

Deaths, 15 Years and Over, Classified by Sex and Occupation, with Per Cents by Sex, for California: October.

	Deaths.			Per cent male.	Per cent female.
	Total.	Male.	Female.		
15 YEARS AND OVER.....	2,447	1,567	880	64.0	36.0
Occupation reported	1,433	1,351	82	94.3	5.7
No gainful occupation.....	1,014	216	798	21.3	78.7

Of the 1,433 decedents for whom occupations were reported the males numbered 1,351, or 94.3 per cent, and the females only 82, or 5.7 per cent.

The following table shows the distribution of male decedents 15 years and over, engaged in the main kinds of occupation.

Deaths of Males Fifteen Years and Over Engaged in Gainful Occupations, Classified by Kinds of Occupation, with Per Cents, for California: October.

Kind of occupation.	Males 15 years and over.	
	Deaths.	Per cent.
ALL OCCUPATIONS.....	1,351	100.0
Professional	92	6.8
Clerical and official.....	96	7.1
Mercantile and trading.....	111	8.2
Public entertainment	28	2.1
Personal service, police and military.....	82	2.4
Laboring and servant.....	300	22.2
Manufacturing and mechanical industry.....	281	20.8
Agriculture, transportation and other outdoor pursuits....	400	29.6
All other occupations.....	11	0.8

Of the 1,351 male decedents for whom occupations were reported, 400, or 29.6 per cent, were engaged in agriculture, transportation, and other outdoor pursuits; 300, or 22.2 per cent, in laboring and servant work; 281, or 20.8 per cent, in manufacturing and mechanical industry; and altogether 370, or 27.4 per cent, in professional, clerical and official, mercantile and trading, and all other occupations.

REPORT OF THE BUREAU OF THE HYGIENIC LABORATORY FOR NOVEMBER.

WILBUR A. SAWYER, M.D., Director.

Government Recognition.

Only those biological laboratories which manufacture products for sale outside the state in which they are situated need a government license. When circumstances made it imperative that the Bureau of the Hygienic Laboratory should manufacture antirabic virus for the treatment of citizens of California, it was undertaken to guarantee in every possible way the safety and efficiency of the product. Upon the request of the State Board of Health, a representative of the United States Public Health Service inspected the laboratory and also secured samples of the antirabic virus. Under date of October 14, 1912, License Number 40 was issued by the Treasury Department to the Hygienic Laboratory of the California State Board of Health for the manufacture and sale of antirabic virus. Although the virus is being used only for free treatment within the State, it is gratifying to receive this license, as it will assure the public that the laboratory has fully met the Government requirements.

Division of Biological Examinations.

Summary of Examinations made in the California State Hygienic Laboratory during the Month of November, 1912.

Condition suspected.	Positive.	Negative.	Inconclusive.	Total.
Main laboratory at Berkeley:				
Anthrax	3	2	0	5
Diphtheria	27	79	0	106
Gonococcus infection	7	2	0	9
Malaria	1	3	0	4
Rabies	28	5	0	33
Tuberculosis	13	23	0	36
Typhoid	6	23	0	29
Water pollution	2	3	1	6
Miscellaneous	2	2	0	4
				282
Northern branch at Sacramento:				
Diphtheria	6	3	1	10
Gonococcus infection	0	1	0	1
Malaria	2	0	0	2
Tuberculosis	1	3	0	4
Typhoid	6	4	0	10
				27
San Joaquin Valley branch at Fresno:				
Diphtheria	5	14	0	19
Tuberculosis	0	1	0	1
Typhoid	0	1	0	1
				21
Southern California branch at Los Angeles:				
Diphtheria	5	9	0	14
Gonococcus infection	0	1	0	1
Tuberculosis	0	1	0	1
Typhoid	0	6	0	6
				22
Total number of examinations.....				302

Division of Preventive Therapeutics.

Pasteur Treatment for the Prevention of Rabies by the State Hygienic Laboratory During the Month of November, 1912.

	Treatment commenced.	Treatment completed.
Main Laboratory at Berkeley.....	3	4
Northern Branch at Sacramento.....	2	2
San Joaquin Valley Branch at Fresno.....	1	0
Southern Branch at Los Angeles.....	0	0
Laboratory of Sacramento Board of Health, by deputized bacteriologist	1	1
Laboratory of San Francisco Board of Health, by deputized bacteriologist	5	10
Laboratory of Los Angeles Board of Health, by deputized bacteriologist	0	0
Laboratory of Letterman General Hospital, Presidio, by deputized bacteriologist	0	1
		12
		18

Public Health Instruction.*Participation in Instruction in Public Health During November, 1912.***Main Laboratory at Berkeley:**

Bacteriological instruction outfits sent out.....	4
Bacteriological instruction outfits in use.....	19
Lectures or talks by the Director.....	1
Lectures or talks by the Chief Bacteriologist.....	2

Division of Epidemiological Investigations.*Epidemiological Investigations During November, 1912.***Main Laboratory at Berkeley:**

Special investigations by the Director.....	1
Beginning of investigation into the methods of spread of poliomyelitis (infantile paralysis).	

Special investigations by the Chief Bacteriologist.....	1
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Investigation of an outbreak of diphtheria in Sutter Creek.

Northern Branch at Sacramento:

Special investigation by the Bacteriologist in charge.....	1
Investigation of a case of acute poliomyelitis at Fair Oaks.	

REPORT OF BUREAU OF FOOD AND DRUGS FOR NOVEMBER, 1912.

M. E. JAFFA, Director.

For the month of November upwards of one hundred samples of food products and drugs were submitted for examination and analysis. About one third of these were what are termed "unofficial" samples, that is samples not collected by duly authorized inspectors, but sent in by stewards of the different State hospitals. Such unofficial samples are examined at the State Laboratory for the purpose of insuring to the institutions food, food products and drugs, that shall be of the best quality and fully meet the requirements of the California food and drugs act.

The list of samples tested represent upwards of twenty-eight different food products.

Thirteen samples of eggs were examined with the result that a large majority of the samples were found to be mislabeled in that they were labeled "Fresh Eggs," whereas the condition of the eggs was such that they could not be termed "fresh."

The provision of the California food act covering the label of eggs reads as follows:

"If, having no label, it is an imitation or adulteration, or is sold or offered for sale under a name, designation, description or representation which is false or misleading in any particular whatever; and in case of eggs and poultry: If they have been kept or packed in cold storage, or otherwise preserved, they must be so indicated by written or printed label or placard plainly designating such fact when offered or exposed for sale."

This, it will be noticed, has reference not only to eggs preserved by cold storage, but also those which are preserved by water-glass, lime water or any other solution. Any eggs, therefore, which have been so preserved, should be properly labeled when offered or exposed for sale, and should not be labeled "Fresh Eggs," neither should they be represented as fresh eggs even though carrying no label.

Any person who sells or offers for sale, eggs which have been preserved in water-glass or lime water or any other solution, without their being properly labeled, is violating the food law, and is subject to prosecution. This applies to all parties preserving eggs by means of the aforesaid solutions, and selling or offering for sale, such preserved eggs. The foregoing statements are made in view of the many questions that have been asked concerning the labeling of preserved eggs.

Oleomargarin Labels.

As all Federal rulings become as issued, automatically part of the California State law, the following will be of interest to those selling oleomargarin:

"In order to prevent unnecessary correspondence and delay in the approval of labels, etc., for oleomargarin, attention is invited to the fact that the State Board of Health will not approve wrappers, etc., bearing such statements with reference to butter as 'the kind that pleases the butter critic,' 'can be used as butter,' etc. In this connection it may be stated that no exception will be taken to the latter statement provided the same is modified by the addition of the words 'substitute for' preceding the word 'butter.'"

Labeling of Lard Compounds.

When preparing labels, stencils, etc., for compounds, the following instructions should be carefully observed: The words "compound" or "lard substitute" followed by the words "composed of," should appear in a prominent manner preceding the names of the ingredients. If desired, the term "lard compound" may be used instead of the word "compound," provided, of course, the product contains not less than 50 per cent pure lard. The names of the ingredients should appear in the order of their percentages; thus, if the percentage of cottonseed oil in a product is greater than that of oleo stearin, the latter name should follow the words "cottonseed oil." In this connection attention is again called to the necessity of accompanying label, etc., with a list of the ingredients and the percentage of each.

All stencils for compounds now in use which do not conform to the above requirements should be immediately corrected.

Notices of Judgments.

Any person wishing copies of any of the following notices of judgments may obtain same by addressing the Director of the State Laboratory, University of California, Berkeley, Cal.:

- No. 1477—Adulteration of Tomato Paste and Tomato Sauce.
- No. 1478—Misbranding of Evaporated Milk.
- No. 1480—Misbranding of Buchu Gin.
- No. 1481—Adulteration of Oysters in Shell.
- No. 1482—Adulteration of Tomatoes.
- No. 1483—Misbranding of Wine.
- Nos. 1484, 1485, 1486, 1487, 1488, 1499, 1490—Adulteration of Milk.
- No. 1495—Misbranding of Morphine Cure.
- No. 1496—Misbranding of Evaporated Milk.
- No. 1497—Misbranding of Hopcream.
- Nos. 1498, 1499, 1508, 1513, 1515, 1526, 1559—Adulteration of Milk.
- No. 1500—Misbranding of Clearo.
- Nos. 1501, 1520, 1540, 1570—Adulteration and Misbranding of Olive Oil.
- No. 1502—Adulteration and Misbranding of Maple Sugar.
- No. 1503—Adulteration of Macaroni.
- Nos. 1504, 1571, 1572, 1573, 1574, 1575, 1580, 1585, 1591—Adulteration and Misbranding of Alleged Maraschino Cherries.
- No. ——————ling of Damiana.

Cases Ordered Referred to District Attorneys November 2, 1912.

Name of article.	Offense.	Manufacturer or jobber.	Accused dealer.	Locality.
Grape Juice Nectar---	Mislabeled. Mixture grape juice and other materials. Adulterated. Substitution of other materials for grape juice.	Cal. Products Co. (Guarantors), Los Angeles.	-----	Los Angeles
Blackberry Jelly ----	Mislabeled. Blackberry flavor can be scarcely detected.	Tillmann & Bendel, San Francisco.	A. Loplich -----	Fresno
Ice Cream -----	Adulterated. Substitution of other materials for ice cream. Mislabeled. Below standard in fat.	-----	Yee Lung -----	San Francisco
Fresh Eggs -----	Mislabeled. Not fresh eggs-----	-----	Crown Creamery Co., J. F. Painter, Prop.---	San Francisco
Fresh Eggs -----	Mislabeled. Not fresh eggs-----	-----	Crown Creamery Co., J. F. Painter, Prop.---	Berkeley
Lemon Extract -----	Adulterated. Substitution of other material. Mislabeled. Below standard in lemon oil.	Wellman, Peck & Co. (Guarantors), S. F.	-----	-----
Crab Cocktails -----	Mislabeled. Contain benzoate of soda not declared on label.	J. B. Ingram (Guarantor), Los Angeles.	-----	-----
Whiskey -----	Adulterated. Substitution of other material. Mislabeled. Contains water.	-----	P. Sentich -----	Los Angeles
Molasses -----	Adulterated. Substitution of water for molasses. Mislabeled. Below standard.	J. H. Newberry Co., Inc. (Guarantors), Los Angeles.	-----	-----
Grapeine -----	Mislabeled. Contains coal-tar color not declared.	-----	K. Watanabe -----	Los Angeles
Coffee and Cereal----	Adulterated. Substitution of chicory. Mislabeled. Substitution of chicory for coffee and cereal.	-----	Albert Cohn -----	Los Angeles
Coffee -----	Adulterated. Substitution of cereal and chicory. Mislabeled. Substitution of cereal and chicory for coffee.	-----	Gunn Supply Co.-----	Los Angeles
Chopped Meat -----	Adulterated. Contains sulphur dioxide-----	-----	Central Market, Louis Estrabou, Prop. -----	San Jose
Ice Cream -----	Adulterated. Substitution of other material. Mislabeled. Below standard in fat.	-----	R. O. Gardner-----	Mountain View

REPORT OF THE BUREAU OF PUBLICATIONS AND HEALTH INFORMATION FOR NOVEMBER.

GUY P. JONES, Acting Director.

Division of Information Correspondence.

This Bureau is in receipt of many inquiries from residents of other States in regard to the location of sanatoria for the care of tuberculosis in California. The volume of these inquiries has become so great and the human appeal so strong that a list of available sanatoria in the State has been prepared, which will be sent to all who request it.

Colorado and California have the highest death rate from tuberculosis of all the states in the Union, and there is probably a greater volume of migration of persons suffering from tuberculosis, in proportion to the population, to these states, than to all others in the Union. While it is not the object of this department to encourage the migration of such cases, it has become necessary from the human standpoint to prepare this list for the benefit of sufferers. It is probable that these inquirers would journey to California whether this list of sanatoria were presented to them or not. If, by enabling them to be placed under care shortly after their arrival, thus minimizing any dangers that might exist to the public, the Bureau considers its work in this direction to be of general service to the State.

Division of Publications.

A thorough revision of the mailing list will be undertaken at the beginning of the year. Those who are at present receiving the Bulletin should signify their desire to be retained on the mailing list, as early as possible, for the reason that the circulation of the Bulletin must be materially decreased because of a lack of sufficient funds for printing.

Requests that names be continued on this list should be filed early in the month of January if possible.

LIST OF COUNTY HEALTH OFFICERS.

County.	Health officer.	Address.
Alameda	Dr. C. L. McKown	Niles
Alpine	County Recorder Frank Smith	Markleeville
Amador	Dr. E. B. Endicott	Jackson
Butte	Dr. L. Q. Thompson	Gridley
Calaveras	Dr. Irwin B. March	San Andreas
Colusa	Dr. C. A. Poage	Colusa
Contra Costa	Dr. W. S. George	Antioch
Del Norte	Dr. E. M. Fine	Crescent City
El Dorado	Dr. L. M. Linsenring	Placerville
Fresno	Dr. W. T. Burke	Fresno
Glenn	Dr. J. A. Randolph	Willows
Humboldt	Dr. Carl T. Wallace	Eureka
Imperial	Dr. Virgil McCoombe	El Centro
Inyo	Dr. I. J. Woodin	Independence
Kern	Dr. G. M. Bumgarner	Bakersfield
Kings	Dr. Ralph Motherol	Hanford
Lake	Dr. W. E. Upton	Kelseyville
Lassen	Dr. W. E. Dozier	Susanville
Los Angeles	Dr. E. O. Sawyer	Los Angeles
Madera	Dr. Mary R. Butin	Madera
Marin	Dr. J. H. Kuser	Novato
Mariposa	Dr. F. L. Wright	Mariposa
Mendocino	Dr. J. Liftchild	Ukiah
Merced	Dr. C. H. Castle	Merced
Modoc	Dr. John Stille	Alturas
Mono	Dr. R. A. Cushman	Bridgeport
Monterey	Dr. Garth Parker	Salinas
Napa	Dr. E. G. Smart	Napa
Nevada	Dr. Carl P. Jones	Grass Valley
Orange	Dr. John Wehrly	Santa Ana
Placer	Dr. O. L. Barton	Loomis
Plumas	Dr. F. D. Walsh	Quincy
Riverside	Dr. George E. Tucker	Riverside
Sacramento	Dr. Hugh Beattie	Elk Grove
San Benito	Dr. J. M. O'Donnell	Hollister
San Bernardino	Dr. Philip M. Savage	San Bernardino
San Diego	Dr. Nathan Hunt	San Diego
San Francisco	Dr. R. G. Brodrick	San Francisco
San Joaquin	Dr. R. B. Knight	Stockton
San Luis Obispo	Dr. H. M. Cox	San Luis Obispo
San Mateo	Dr. W. O. Beattie	Colma
Santa Barbara	Dr. J. C. Bainbridge	Santa Barbara
Santa Clara	Dr. William Simpson	San Jose
Santa Cruz	Dr. W. R. Congdon	Santa Cruz
Shasta	Dr. F. Stabel	Redding
Sierra	Dr. R. B. Davy	Downsville
Siskiyou	Dr. F. J. McNulty	Yreka
Solano	Dr. S. G. Bransford	Suisun
Sonoma	Dr. P. A. Maneray	Santa Rosa
Stanislaus	Dr. F. R. De Lappe	Modesto
Sutter	Dr. E. V. Jacobs	Meridian
Tehama	Dr. E. E. Thompson	Red Bluff
Trinity	Dr. D. B. Fields	Weaverville
Tulare	Dr. W. A. Preston	Visalia
Tuolumne	Dr. Wm. Lyman Hood	Sonora
Ventura	Dr. A. A. Maulhardt	Oxnard
Yolo	Dr. W. J. Elevins	Woodland
Yuba	Dr. J. H. Barr	Marysville

LIST OF CITY HEALTH OFFICERS.

City.	Health officer.	City.	Health officer.
Alameda	Dr. A. Hieronymus	Burlingame	
Albany	Dr. Robt. Hector	Callistoga	Dr. Henry Abrons
Alhambra	Dr. F. E. Corev	Calexico	Dr. Wm. F. Smith
Alturas	Dr. John Stille	Chico	G. H. Taylor
Alviso		Chino	Dr. John W. Callion
Anaheim	Dr. J. L. Beebe	Claremont	
Antioch	Dr. W. S. George	Cloverdale	Dr. Cory C. Ledyard
Arcadia		Colingia	Dr. H. S. Warren
Arroyo Grande	Dr. G. W. McKinnon	Colfax	
Auburn	A. S. Waldo	Colton	Dr. L. A. J. La Motte
Asus	Dr. L. W. Atkinson	Colusa	Dr. C. A. Poage
Bakersfield	H. Farris	Compton	J. W. Stone
Belvedere	Dr. Florence Scott	Concord	Dr. F. F. Neff
Benicia	Dr. W. L. McFarland	Coram	Geo. H. Thomas
Berkeley	Dr. J. J. Benton	Corning	Dr. W. F. Maggard
Biggs	Dr. B. Caldwell	Corona	Dr. W. H. Chapman
Bishop	Dr. J. W. Shute	Coronado	Dr. Raffaele Lornal
Blue Lake	Dr. G. N. Wood	Cottonwood	Dr. A. B. Gilliland
Brawley	Dr. L. L. Lindsay	Covina	
Burbank		Crescent City	
		Daly City	

LIST OF CITY HEALTH OFFICERS—Continued.

City.	Health officer.	City.	Health officer.
Davis.	Dr. W. E. Bates	Pacific Grove.	Charles E. Tuck
Delano.	Dr. H. Hildreth	Palo Alto.	Hubert O. Jenkins
Dinuba.	H. Hurst	Pasadena.	Dr. Stanley P. Black
Dorris.	Dr. A. A. Atkinson	Paso Robles.	B. B. Pierce
Dixon.	W. C. Rhem	Perris.	A. F. Hardy
Dunsmuir.	Dr. W. B. Mason	Petaluma.	Dr. J. M. Proctor
Eagle Rock.	Dr. C. H. Phinney	Pinole.	J. Chattleton
Elginore.	Dr. George D. Keeler	Pittsburg.	Dr. F. S. Gregory
Emeryville.	Dr. A. T. Drennan	Placerville.	P. J. Hall
Escondido.	Dr. David Crise	Pleasanton.	Dr. S. J. Wells
Etna Mills.	Dr. W. H. Hainee	Pomona.	Dr. T. J. Wilson
Eureka.	Dr. L. A. Wing	Porterville.	Dr. O. C. Higgins
Exeter.	Dr. A. D. McLean	Piedmont.	Geo. T. Burtchael
Fairfield.	Dr. S. G. Bransford	Point Arena.	
Ferndale.	Dr. C. A. Phelan	Potter Valley.	
Fort Bragg.	Dr. L. C. Gregory	Randsburg.	E. B. McGinness
Fort Jones.	Thos. Bransom	Red Bluff.	Dr. F. J. Bailey
Fortuna.	Dr. Geo. S. Loveren	Redding.	L. D. Poole
Fowler.	Dr. W. T. Crawford	Redlands.	Dr. Chas. E. Ide
Fresno.	Dr. Geo. H. Alken	Redondo Beach.	Dr. D. R. Hancock
Fullerton.	Dr. F. J. Gobar	Redwood City.	Dr. J. L. Ross
Gilroy.	Dr. John A. Clark	Richmond.	Dr. Chas. R. Blake
Glendale.	Dr. R. E. Chase	Rio Vista.	Dr. A. J. McKinnon
Grass Valley.	Paul E. Sears	Riverside.	Dr. Thos. R. Griffith
Gridley.	Dr. L. L. Thompson	Rocklin.	H. D. Fleasche
Hanford.	Dr. C. L. Scott	Roseville.	Dr. R. H. Ashby
Hayward.	Dr. G. E. Reynolds	Ross.	
Healdsburg.	Dr. J. W. Seawall	Sacramento.	Dr. Wm. K. Lindsey
Hemet.	Dr. A. B. Eadie	Saint Helena.	S. H. Pettit
Hermosa Beach.	G. A. Cleveland	Salinas.	S. A. McCallum
Hercules.	Dr. M. L. Fernandes	San Anselmo.	Dr. Chipman
Hillsborough.		San Bernardino.	Dr. C. V. McConico
Hollister.	Dr. R. G. Curtis	San Diego.	Dr. F. H. Mead
Hollywood.	E. O. Palmer	San Francisco.	Dr. R. G. Broderick
Huntington Beach.	Dr. G. A. Shank	Sanger.	
Huntington Park.	Dr. W. Thompson	San Jose.	Dr. M. F. Hopkins
Imperial.	Dr. C. E. Standee	San Jacinto.	Thos. Lloyd
Inglewood.	Dr. H. A. Putnam	San Juan.	W. R. Moore
Jackson.	George Hambric	San Luis Obispo.	Dr. P. L. Rookledge
Kennett.	Dr. J. P. Sandholdt	San Rafael.	Dr. W. F. Jones
Kernville.		San Mateo.	Dr. S. G. Goodspeed
King City.		San Leandro.	P. C. Du Bois
Kingsburg.		Santa Ana.	Dr. J. I. Clark
Lakeport.	Jabes Banks	Santa Barbara.	Dr. D. A. Conrad
Larkspur.		Santa Cruz.	Dr. H. E. Piper
Lincoln.	F. R. Elder	Santa Clara.	Dr. J. F. Beattie
Lindsay.	Dr. W. W. Tourtillot	Santa Monica.	Dr. W. H. Parker
Livermore.	Dr. H. G. McGill	Santa Paula.	Dr. B. E. Merrill
Lodi.	Dr. F. W. Colman	Santa Rosa.	Dr. Jackson Temple
Long Beach.	Dr. W. H. Newman	Santa Maria.	Dr. O. P. Paulding
Lompoc.		Sausalito.	Dr. A. H. Mays
Lordsburg.	Dr. J. E. Hubble	Sawtelle.	Dr. A. B. Hromadka
Los Angeles.	Dr. L. M. Powers	Selma.	Dr. F. H. Williams
Los Banos.	Dr. J. L. McClelland	Sierra Madre.	Dr. R. H. Mackerras
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CALIFORNIA STATE BOARD OF HEALTH

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MONTHLY BULLETIN

Vol. 8

JANUARY, 1913

No. 7

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SACRAMENTO, CALIFORNIA
1913

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REGULAR MEETINGS.

The meetings of the California State Board of Health are held regularly the first Saturday of each month, but the quarterly meetings required by law to be held at the Capitol of the State are ordinarily designated as January, April, July, and October.

By courtesy of the University of California the Food and Drug Laboratory and the Hygienic Laboratory are located in University buildings at Berkeley, California.

Address all communications to the

SECRETARY, Sacramento, Cal.

JANUARY BULLETIN.

COMMENTS.

The Report of the Tuberculosis Commission.

This number of the bulletin contains an abstract of the more important data contained in the report of the Tuberculosis Commission appointed in 1911 by the State Board of Health. The Board believes every student of the tuberculosis problem as it exists in California, will find in this abstract facts and figures upon which to base conservative estimates for money, equipment and employees required for operating any plan that may be put forward for the control and gradual eradication of the disease.

The figures presented on the cost of undertaking a comprehensive state wide campaign are startling. At first thought an expenditure of over a million dollars for equipment and a million dollars annually for maintenance seems absurdly impractical and excessive. But in business dealings all expenditures are rated according to their urgency and values received. Without commenting on the question as to whether the State can or should at this time, undertake such an expense, the State Board calls attention to the great losses in money, in industrial efficiency, and in other ways, now being caused by tuberculosis. If the expenditure of one million dollars annually in California were to reduce the present incidence of the disease no more than five to ten per cent, the investment would more than pay for itself. It should be understood, however, that the Tuberculosis Commission has not specifically advocated a state expenditure of any such sum. Its figures are presented to give the citizens of the State a definite basis on which to estimate the proportionate influence and value of whatever may be decided upon.

The State Board of Health does not present herewith any recommendations for legislative action, because the legislature itself must decide two important points, before definite recommendations can be made:

1. Either the State must assume the responsibility for the control and eradication of tuberculosis, or the counties and towns must be required to do so.

2. The amount of money to be expended either by the State, or by local public authorities must be determined.

With these two questions settled, plans can be outlined. Everything that may be undertaken should be carefully considered in relation to its place in the general plan outlined by the Commission.

The Personnel of the Commission.

The members of the Commission are as follows:

EXECUTIVE BOARD.*

Dr. George H. Kress, Los Angeles, Chairman,

President (1911-1912) California Society for the Study and Prevention of Tuberculosis, Professor of Hygiene, Los Angeles Medical Department, University of California, formerly in charge of Helping Station, Los Angeles Tuberculosis Society.

**The purpose in publishing a few of the activities of each member of the Commission, is to give a definite idea of the qualifications of the persons appointed, and the wide range of knowledge of medical, social, economic and business conditions collectively represented.*

Dr. Chas. C. Browning, Los Angeles,

A tuberculosis specialist, formerly medical director in several sanatoria, member of faculty University of Southern California, Tuberculosis Division, Department of Medicine.

Dr. R. G. Brodrick, San Francisco,

Health Officer of San Francisco, formerly executive secretary San Francisco Association for the Study and Prevention of Tuberculosis.

Mr. A. Bonnheim, Sacramento,

President, California Public Health League, Member Board of Directors Alta Sanitarium for Tuberculosis, maintained as a part of the equipment of the White Crusaders.

Miss Katherine C. Felton, San Francisco,

Secretary, San Francisco Associated Charities.

ADVISORY BOARD.

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Architect, and formerly director, San Francisco Association for the Study and Prevention of Tuberculosis, member executive committee San Francisco Housing Association.

Dr. W. Jarvis Barlow, Los Angeles,

Medical Director, Barlow Sanatorium for Tuberculosis, Professor of Medicine, Los Angeles Medical Department, University of California.

Rev. Dana Bartlett, Los Angeles,

Member Los Angeles Housing Commission.

Chas. H. Bentley, San Francisco.

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Chas. A. Bliss, Sacramento,

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L. D. Bohnett, San José,

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Dr. Richard G. Boone, Berkeley,

Lecturer in Education, University of California.

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Former president, State Tuberculosis Association.

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State Senator, 1911.

Dr. Philip King Brown, San Francisco,

Medical Director of Arequipa Sanatorium for Early Cases of Tuberculosis in Wage-Earning Women.

Mrs. Samuel Brust, San Diego,

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Rev. D. O. Crowley, San Francisco,

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Miss Margaret B. Curry, San Francisco,

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Frederick W. Dohrmann, San Francisco,

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Dr. Geo. H. Evans, San Francisco,

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Dr. N. K. Foster, Oakland,

Director Department of Health and Sanitation, Oakland Schools.

Prof. J. H. Francis, Los Angeles,

City Superintendent Public Schools.

J. E. Gardner, Watsonville,

Former Attorney for State Board of Health.

Dr. Frederick P. Gay, Berkeley,

Professor of Pathology, University of California.

Dr. Minerva Goodman, Stockton,

Medical Superintendent of Stockton Red Cross Tuberculosis Hospital.

Thos. F. Griffen, Modesto,

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Dr. C. M. Haring, Berkeley,

Agricultural Experiment Station, Assistant Professor Veterinary Science, University of California.

Dr. Geo. H. Hart, Los Angeles,

City Veterinarian of Los Angeles Health Department, formerly with Pathological Division, Bureau of Animal Industry, Washington, D. C.

Dr. Frederick W. Hatch, Sacramento,

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John E. Hoyle, San Quentin,

Warden of San Quentin State Prison.

Edward Hyatt, Sacramento,

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- Dr. John C. King, Banning,
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- Walter Macarthur, San Francisco,
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- Mrs. M. W. Kincaid, San Francisco,
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- Martin A. Meyer, San Francisco,
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- Mrs. Robert O. Moody, Berkeley,
Formerly Instructor in Biology, Cornell University.
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- Dr. Geo. C. Pardee, Oakland,
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- Dr. Robert A. Peers, Colfax,
Medical Director of the Colfax School for the Tuberculous.
- Dr. F. M. Pottenger, Monrovia,
Medical Director, Pottenger Sanatorium for Diseases of the Throat and Lungs.
- Dr. Geo. F. Reinhardt, Berkeley,
Professor of Hygiene and Director Infirmary, University of California.
- Dr. Chester L. Roadhouse, Berkeley,
Instructor in Veterinary Science, University of California.
- W. A. Sutherland, Fresno,
Member of 1911 Assembly.
- Dr. Geo. E. Tucker, Riverside,
Secretary of the California Society for the Study and Prevention of Tuber-
culosis, Riverside County Health Officer.
- Dr. Edward von Adelung, Oakland,
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- Dr. Wm. C. Voorsanger, San Francisco,
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culosis.
- Dr. Chas. H. Whitman, Los Angeles,
Medical Director of Los Angeles County Hospital.
- Frederick S. Withington, San Francisco,
Actuary of Western States Life Insurance Company.

For administrative purposes the legislature assigned the investigation of tuberculosis officially to the State Board of Health rather than to an independent commission, but the report which will be issued is due collectively to the excellent work of the members of this voluntary commission and the many local tuberculosis workers throughout the State.

The secretary of the Commission, Miss W. R. D. Randall, and the acting secretary, Mr. G. P. Jones, are deserving of special recognition for their very efficient and thorough work.

The State Board of Health takes pleasure in acknowledging its indebtedness to all these earnest workers in the fields of preventive medicine and sociology.

Wage Loss from Tuberculosis in an Average Year. The high cost of living occupies the attention of a large part of the population of the country. The following statement prepared by the acting secretary of the Commission, Mr. G. P. Jones, is worthy careful reading:

"The actual loss in wages, for a single year (1911), to those engaged in wage-earning occupations who died from tuberculosis in California during 1911, amounted to almost \$3,000,000. Eight hundred and forty-four thousand dollars of this loss, almost one third of the total, *fell upon those engaged in manufacturing and mechanical industries,*

the skilled trades—carpenters, engineers, machinists, painters, plumbers, tailors, etc. Over half a million, almost one fifth of the total, fell upon those engaged in agriculture, transportation and other outdoor pursuits. The loss was almost as great to the class engaged in other than agricultural pursuits, laborers and servants, among whom there were more deaths in actual numbers than in any other class, but who did not share so great a financial loss because of the lower wage received. Over a quarter of a million dollars was lost to those engaged in clerical and office work, and almost as much to merchants and traders. The loss to those engaged in the professions amounted to \$208,000, and for women workers it was \$138,000.

The average age of death for those dying of tuberculosis in California is 36 years, while the average age of life in the State is 48 years. If these workers had lived the twelve years to which they were entitled, as average human beings, had they not died of this preventable disease, they would have earned no less than \$39,618,000, which is lost not only to themselves, but to their families and to the State. This is but a fraction of the aggregate loss, when the cost for care, medical attendance, support of dependent families, etc., is considered. This is one of the things that makes the cost of living higher, for it is safe to say that each death from tuberculosis raises the rate of taxation, not alone through the public expense for care of dependent families, but also for the care of the living afflicted. There are few lodges and fraternal organizations that do not have members drawing benefits for illness from tuberculosis, and there are 1,500 tuberculosis cases being cared for constantly by the State, the number increasing every year.

In the tabulation which follows it will be noted that of the 1,565 women over 15 years of age who died of tuberculosis, no occupation was recorded for 1,380. Most of these were housewives, whose loss to the family cannot be estimated in dollars nor in influence, but which no doubt has in many cases a far reaching effect in furthering juvenile delinquency, resulting in expense to the State.

The wage estimate used in this tabulation is based upon the report of the State Bureau of Labor and may be considered as conservative. The actual loss is probably greater than represented."

	Total number deaths from tuberculosis, 15 years and over.	Total number gain-fully employed at time of death.	Number without occupation.	Occupational group.	Number of deaths.	Loss in wages one year.
Male -----	3,074	2,745	329	Mechanical and manufacturing.	577	\$844,224 00
				Agriculture, transportation and other outdoor pursuits.	690	517,500 00
				Laboring and servant.....	773	463,800 00
				Clerical and official.....	197	256,100 00
				Mercantile and trading....	189	236,250 00
				Professional	139	208,500 00
				Personal service, police etc.	90	90,000 00
				Public entertainment, hotel, etc.	66	82,500 00
				Other occupations	24	18,720 00
Female -----	1,565	185	1,380	All occupations	185	138,750 00
Totals....	4,639	2,930	1,709	.....	2,930	\$2,856,344 00

Tuberculosis in Relation to Marriage and Occupation.

The report of the Commission shows tuberculosis to be especially a problem of the industrious poor—poor in the sense that the earning capacity of the breadwinners is limited to very low wages; industrious as evidenced by a large proportion of its victims having married and begun the making of homes and rearing of families. Much of the tragedy of tuberculosis lies in its selection of these young married persons; a young husband cut off from providing for his wife and helpless children; a young wife required to leave her children to the chance bringing-up of her unprepared husband, or both husband and wife within a few years compelled to leave their children to the care of relatives or the State; these are the things which touch our sympathy and rouse us to the fighting point, when we come into direct touch with them.

Economically this problem may be stated this way: A young man, earning \$1,000 per year decides to marry. He is strong, his wife is a successful manager of the home, and together they plan their future—a cottage on the installment plan, a bank account for the education of their children, etc.—so the years pass quickly and joyously. The man has reached the age of thirty-two or three and the children have entered school, when something happens—the “white plague” has put its stamp on this family. In a year or two this young husband has been taken to the cemetery, the young mother has given up the home to the building and loan society and is desperately trying to earn enough money to feed and clothe her children. The law of general averages should have given this man until the age of forty-eight to live, whereas tuberculosis killed him at the average age of thirty-six. Thus, his wife faces the loss of the \$12,000 he would have earned during that time. Manifestly poverty counts tuberculosis an important ally.

The Commission estimates that 75 per cent of the 5,000 deaths annually occurring in California are among persons on an income of \$1,000 or less. Forty-seven per cent of these 5,000 victims are married. The Commission has not yet completed its investigation of the number of these patients who leave children, or the number of second and third visitations of the disease to the same families, but the economic significance of the following figures must be apparent to all.

Tuberculosis has registered 23,831 deaths in California in the past five years. Of this number, approximately 11,000 were married. It is believed that at least 10,000 separate families are represented in this number. This averages 2,000 per year for the five year period. At the present time we are talking much about mothers' pensions. The figures of the Commission would indicate that it is the husband who dies first in nearly 60 per cent of these two thousand families. This means 900 families (75 per cent of 1,200) cut off annually from the \$1,000 income of the wage-earner. If the State were to provide this \$1,000 annually for ten years in order to permit these mothers to bring up and educate their children, it would cost \$900,000 per year; and the adoption of a permanent policy of this kind would require \$90,000,000.

No one will deny that a mother needs \$1,000 a year to properly clothe, house, nourish and educate her children, and that she should

devote her whole time to the task. If this is true, what happens now in these families that have the breadwinner cut off? Who provides the \$1,000? If it is not provided, what becomes of the family? Is the argument just outlined financially sound? If so, is it not apparent that tuberculosis does cost California and California citizens many millions of dollars annually? And if this be true, is not the argument sound that the State should take charge of this problem and properly solve it, even if it does require the expenditure of very large sums of money from the various agencies that should contribute?

Of course it may be argued that the family of a man on \$1,000 per year receives not more than \$700, but as against this it might be argued that the \$300 balance should be set aside as an endowment to care for the mother after her work of bringing up her family is done. Unless she is so provided for, she becomes a handicap on the children when they should be free to marry and begin developing their own homes. No reference is made to the loss suffered by the death of the mother of a family, as the wage-earner is left and can at least provide the necessities of life, if not the inestimable training and home influences which only a mother can provide. Also no reference is made to the plight of the mother left by the husband whose salary was many times \$1,000. Often such men have made no provision for their families and their wives are more helpless than those whose husbands were receiving \$1,000 or less.

A similar argument might be developed for those unfortunate men and women of marriageable age who do not marry because they know their condition and the fate which will ultimately be theirs.

The report of the Commission is full of material for many such arguments on the tremendous economic and social waste, which tuberculosis is now permitted to bring about. Prevention in this instance will certainly be found cheaper and better than "cure."

For the year 1911, the percentage of deaths from tuberculosis was highest among barbers and hairdressers—29.2 per cent. It was almost as high for servants, bookkeepers and clerks, and tailors—all indoor occupations. For iron and steel workers and machinists the percentages were 24.4 and 24.8, respectively, while for saloonkeepers and engineers and surveyors (draughtsmen) it was 23.0 and 22.5.

In marked contrast to these stand the outdoor occupations and those which do not favor the development of the disease: Soldiers and sailors, 7.0 per cent; policemen and watchmen, 7.5 per cent; lumbermen, 10.4 per cent; farmers, 11.1 per cent. For merchants the percentage was 11.9 per cent, and for bankers and brokers it was 6.2 per cent. The following table gives the number of deaths and percentage for each group.

Of those engaged in occupations showing more than 20 per cent of all deaths to be caused by tuberculosis, 8.8 per cent only are averaging \$1,200 per year, all the rest are in occupations which pay an average of \$900 per year. The low-wage problem touches the tuberculosis problem in many places. Of course all such statistical deductions are based on incomplete data and their interpretation necessarily involves many special factors.

Deaths of males 15 years and over engaged in Gainful Occupations, Classified by Specific Occupation, with Number and per cent from Tuberculosis, for California: 1911.

Occupation (causing at least 100 deaths from all causes).	Males 15 years and over.		
	Total deaths.	Tuberculosis.	
		Number.	Per cent.
All occupations	15,409	2,745	17.8
Professional—			
Engineers and surveyors.....	138	31	22.5
Lawyers	138	24	17.4
Physicians and surgeons.....	129	18	10.1
Clerical and official—			
Bookkeepers, clerks and copyists.....	520	137	26.4
Bankers, brokers and officials of companies.....	177	11	6.2
Collectors, auctioneers and agents.....	297	38	12.8
Mercantile and trading—			
Merchants and dealers.....	715	85	11.9
Public entertainment—			
Saloon keepers, liquor dealers, bartenders and restaurant keepers....	256	59	23.0
Personal service, police and military—			
Barbers and hair dressers.....	106	31	29.2
Policemen, watchmen and detectives.....	121	9	7.5
Soldiers, sailors and marines (U. S.).....	114	8	7.0
Laboring and servant—			
Laborers (not agricultural).....	2,960	658	22.2
Servants	425	115	27.1
Manufacturing and mechanical industry—			
Blacksmiths	174	25	14.4
Carpenters and joiners	612	85	13.9
Engineers and firemen (not locomotive).....	222	40	18.0
Iron and steel workers	119	29	24.4
Machinists	165	41	24.8
Painters, glaziers and varnishers.....	243	44	18.1
Tailors	123	32	26.0
Agriculture, transportation and other outdoor—			
Draymen, hackmen, teamsters, etc.....	380	74	19.5
Farmers, planters and farm laborers.....	2,185	243	11.1
Gardeners, florists, nurserymen and vine growers.....	185	30	16.2
Lumbermen and raftsmen	115	12	10.4
Miners and quarrymen	738	144	19.5
Sailors, pilots and oystermen.....	287	36	12.5
Steam railroad employees	308	44	14.8
Stock raisers, herders and drovers.....	391	53	13.6

**The Friedmann
Tuberculosis
"Cure."**

Recently the whole civilized world has been demanding information concerning a treatment of tuberculosis advanced by Dr. Friederich F. Friedmann of Berlin. It is too early to say whether this treatment is destined to become a mile stone in our progress toward victory over this disease, or whether it is doomed to be only one more addition to the attacks that have failed. It is, however, significant and encouraging to note, that the general public is discussing the claims of Dr. Friedmann with more judgment and desire to get all the facts before crediting or discrediting the treatment, than has been evidenced on similar occasions in the past years.

It may be noted by some readers of the abstract of the Tuberculosis Commission's Report that no mention is made of methods of treatment of tuberculosis, by tuberculins or other biological products. The reason for this is that any statement made by the members of scientific committees must either be so couched in scientific terms and safeguarded by conditional statements that the general public would get

little out of it, or it must be essentially an approval or rejection of such methods. Neither of these alternatives cover the situation. It is possible that at any time new scientific discoveries may be the beginning of unparalleled advances in the eradicating of tuberculosis, but at the present time there is nothing definite upon which to base a prediction that this will happen. In the case of Dr. Friedmann, if he is sincere, he should be given every opportunity to prove his deductions and before publishing its decision the world should watch developments as an interested and unbiased judge until all the evidence is submitted. And if the decision is against Dr. Friedmann, the world should not be discouraged. The story of Robert Bruce and the spider has its application to modern warfare against disease.

The Line of March to the South and West.

If tuberculosis victims all wore uniforms, and a Stevenson were to stand and watch at the great gateways of travel to the south and west, what a tragic story would be written of the ceaseless flow of human wreckage from the battlefields of the white plague's operations in the East! Unlike the hopelessly injured from the battlefields of human warfare, these victims carry with them some measure of danger to all with whom they come in close contact. One great question among the citizens of the South and West is: "Shall we make these victims, who wish to come among us, outcasts, and endeavor to prevent their coming?"

Nothing is said in the Commission's abstract upon this point, but the full report will contain a discussion on this problem. Three factors may be unofficially referred to here:

1. The preparation of an official statement by each state board of health upon tuberculosis as related to climatology, occupations, living conditions, laws, attitude of the people, and special accommodations for patients. The National Tuberculosis Association has plans under consideration for distributing such literature among tuberculous patients intending to migrate.

2. The establishment of an information bureau service for tuberculous patients passing through each of the great railway centers. A great many of the tuberculous patients come into these centers on local tickets from their home communities, and there meet trans-continental agents, to arrange the final details of purchasing the "big ticket." Many of those unfortunate victims of tuberculosis who cannot be benefited by coming West, could and should be advised to turn back at this point.

3. The development, in co-operation with the railway passenger associations, of regulations relating to the travel of passengers ill with specified diseases. It would seem feasible to add a clause to the printed conditions on each overland ticket which every passenger signs, to the effect that before a ticket is issued each person suffering with tuberculosis must obtain and file with the railway company a permit from the State Board of Health having jurisdiction over the point of destination, or file in duplicate a statement that he is provided with sufficient funds to provide proper care for himself while away from the State in which he is a registered citizen, the duplicate to be immediately forwarded to the above mentioned board of health.

THE CALIFORNIA STATE BOARD OF HEALTH

A PRELIMINARY ABSTRACT

OF THE

FINAL REPORT

OF THE

CALIFORNIA TUBERCULOSIS COMMISSION

Submitted December 24, 1912

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ANNOUNCEMENT.

The reports of the several committees of the Commission are so comprehensive and contain so much material that could not be prepared for publication prior to the convening of the legislature, that it was decided to publish in the bulletin only the basic arguments for the general conclusions decided upon by the Commission, and to request the members of the Commission to continue their work until after the legislature had adjourned. The final report will then be printed together with references to any new legislation that may have been enacted by the fortieth session of the legislature.

SPECIAL ANNOUNCEMENT.

As this bulletin goes to press the Executive Board of the Tuberculosis Commission presents the following recommendations relative to the tuberculosis legislation. In order of importance the State requires:

1. A DIVISION OF TUBERCULOSIS under the State Board of Health, with an appropriation of twenty thousand dollars for the two years 1913, 1914.

[Senate Bill No. 980, introduced by Senator Mott, and the companion Assembly Bill No. 1234, introduced by Assemblyman Guill, provide for this.]

2. A REVOLVING FUND for use by the State Board of Health in providing immediate assistance to emergency or otherwise specially urgent cases; the respective counties responsible for such cases to be required to reimburse the revolving fund for all sums expended from it.

[Senate Bill No. 974, introduced by Senator Birdsall, and the companion Assembly Bill No. 1385, introduced by Assemblyman Dower, make such provision.]

3. STATE REGULATION of county hospital wards for advanced tuberculosis patients and STATE AID for county treatment of tuberculosis patients to the extent which may be indicated by the finances of the State.

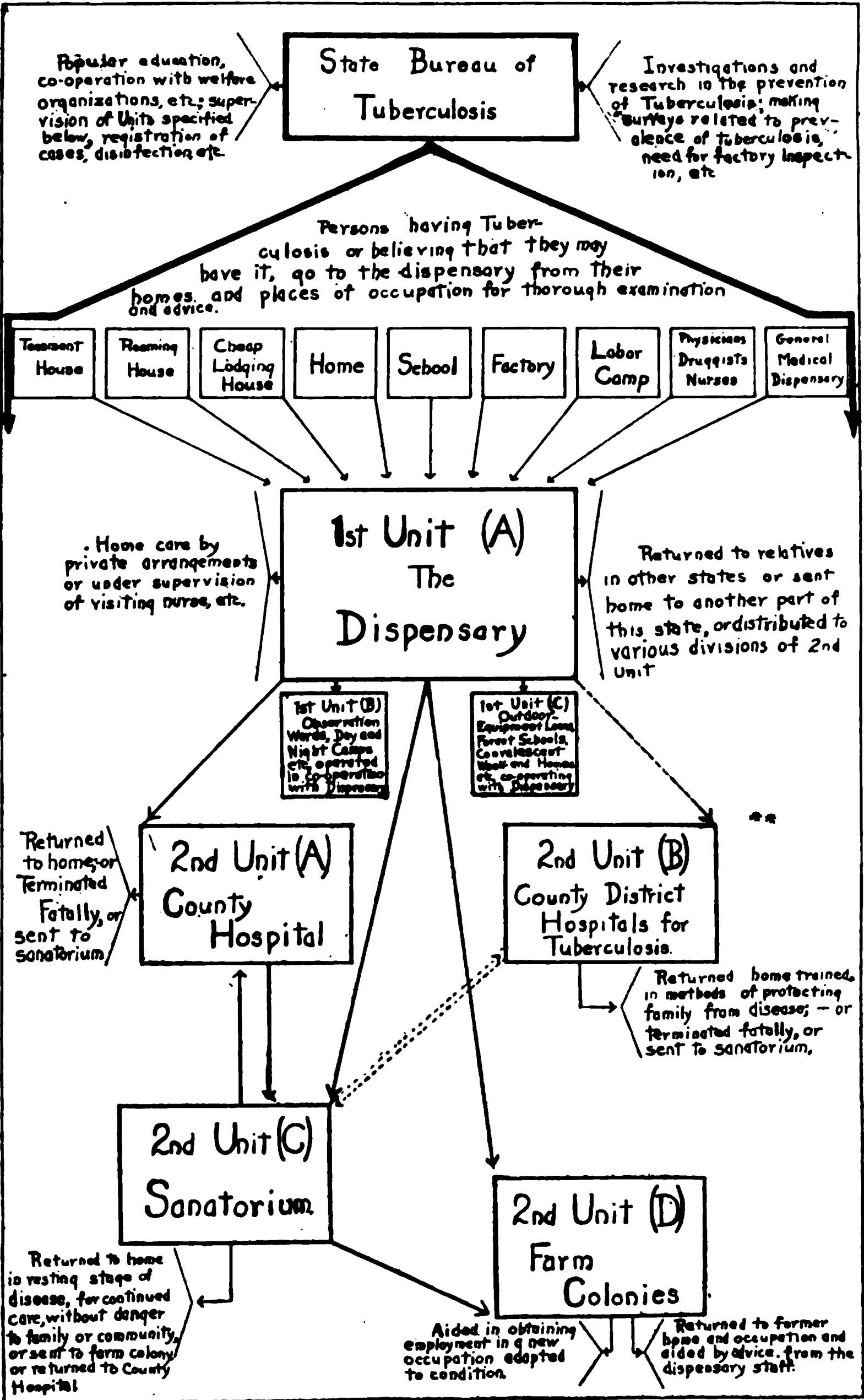
[If funds are available for this purpose Senate Bill No. 6, introduced by Senator Boynton, can be amended in accordance with the suggestion.]

4. STATE FARM COLONIES for early and convalescent tuberculosis patients, to be provided if possible.

[Senate Bill No. 1094, introduced by Senator Boynton, and the companion Assembly Bill No. 1403, introduced by Assemblyman Farwell, provide for these measures.]

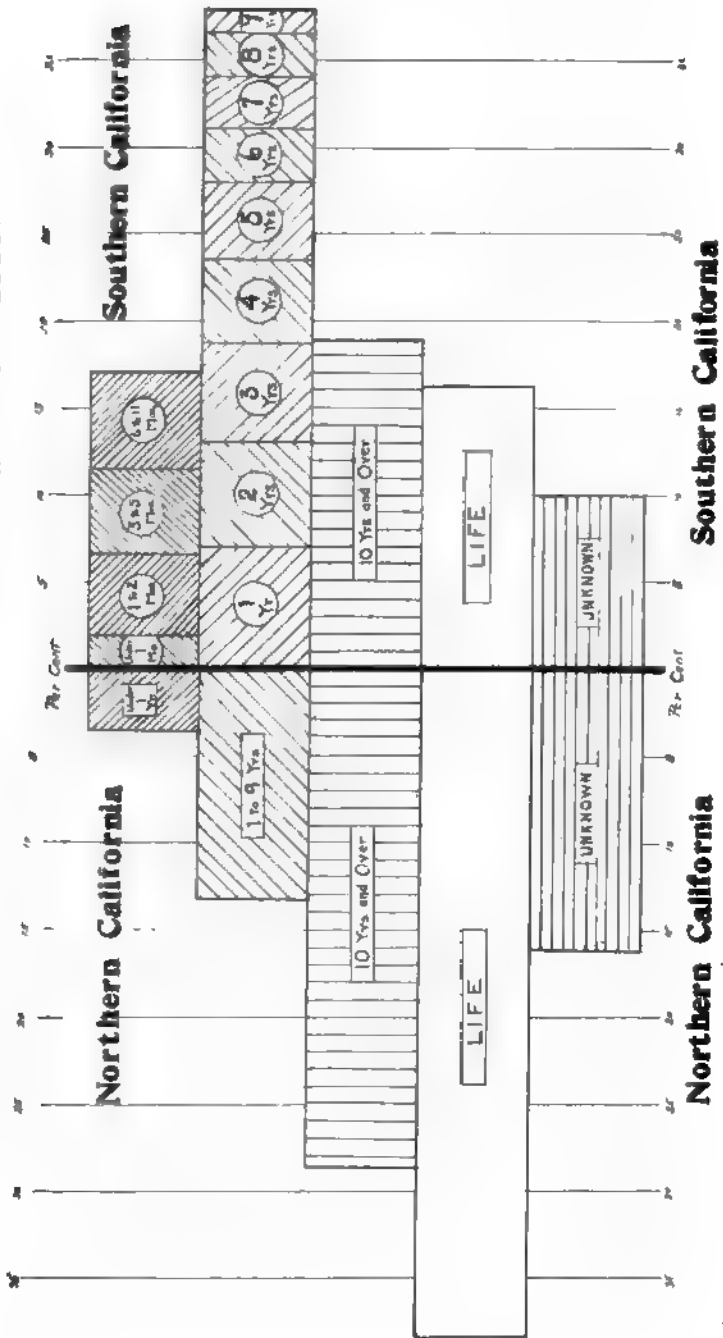
5. Existing laws related to tuberculosis to be amended if necessary so as to insure their enforcement, and official recognition of dispensaries should be provided, although at the present time it is deemed expedient that they should remain supported wholly by municipal and philanthropic appropriations.

Diagram Showing the Essential Factors in the Control and Eradication of Tuberculosis.*



* Printed with the report of the Tuberculosis Commission of the California State Board of Health 1912.
 ** Two or more counties may find it economical to combine in providing county district hospitals for their advanced cases. The dotted arrows show how this plan would be related to the general scheme presented.

Annual Average PerCent Distribution by Length of Residence of Deaths from Tuberculosis, Northern & Southern California . 1907 - 1911.



A PRELIMINARY ABSTRACT OF THE FINAL REPORT OF THE CALIFORNIA TUBERCULOSIS COMMISSION.

December 24, 1912.

The California State Board of Health, Sacramento, California.

GENTLEMEN: In September, 1911, we were commissioned by you to investigate the problem of tuberculosis in California, and to recommend to your Board an effective and comprehensive plan for the control and gradual eradication of the disease. Our report deals with the essential factors to be considered in the development of a permanent policy, rather than with those factors only, which it may be deemed practicable to present for legislation at this time.

A Comprehensive Plan Necessary for Success.

It is vitally necessary that California should adopt a definite program for the prevention of tuberculosis, and that every measure adopted should be considered in relation to this program even though the whole plan may not be realized for a number of years. In developing this plan it has been the purpose of your Commission to take into consideration, so far as possible, the existing facilities (both public and private) for dealing with tuberculosis, the existing laws, and other agencies already operative.

The thorough consideration of the problem requires much inquiry and deliberation, and your Commission desires that this interim report shall not be taken as the final expression of the members' views on all the details.

It is believed that the general recommendations herewith submitted are sound, and that experience has shown that they should be adopted, but there are many minor points which require further investigation. Your Commission therefore believes that provision should be made for continuing scientific and sociological studies of the problem.

The Nature of the Problem.

The problem of the prevention and treatment of tuberculosis presents two distinct phases which may be designated as (a) the problem of the "seed" of the disease, and (b) the problem of the "soil" in which the seed may be planted.

It is now generally accepted that both the human and bovine types of the bacillus of tuberculosis are capable of giving rise to the disease in human beings. The question whether the introduction of these bacilli into the human body, will result in the production of definite disease depends largely upon the amount and virulence of the infective material invading the vulnerable tissues of the body and the condition and degree of activity of the defensive forces of the body. Certain factors tend to weaken those defensive forces and thus to render the body less able to resist the infecting organisms. Among these factors may be cited (1) the constitution of the individual; (2) the surroundings in which he lives; (3) his standard, habits, and method of life; (4) the nature of his occupation or employment; (5) the diseases and accidents to which he has been subjected. It should be added that

the disease has its own peculiar age incidence in regard to which there are, of course, a considerable variety of operative factors.

The disease has a wide prevalence and a correspondingly large mortality. Medical records show that large numbers of the citizens of the State have, at some time or other, developed tuberculosis, although it may have remained latent and unrecognized. California averages approximately 5,000 deaths per year from tuberculosis, each death terminating a period of illness varying from several months to a number of years. In the majority of instances, during the final four months at least, each patient is a serious menace to his family or the public. For example, in Berlin, the systematic examination of the families of 4,500 new patients having pulmonary tuberculosis revealed 4,500 additional cases of previously unknown tuberculosis among the associates of these patients.

Such data, as can be safely used for purposes of deduction, indicates that there are constantly present in the state between 40,000 and 50,000 tuberculous patients (counting all active stages). Of this number it is probable that a minimum of 5,000 or 6,000 require public assistance, if they are to receive proper treatment, under conditions which will prevent the spread of the disease to other members of their families and associates. It is estimated that these *6,000 cases would be distributed somewhat as follows:

- * (7000) 3500 cases so situated as to require only dispensary supervision of home treatment.
- * (3000) 1500 advanced cases requiring county or district hospital treatment, and isolation to prevent infection of others.
- * (1000) 500 cases in which recovery is probable, requiring special treatment in district sanatoria.
- * (1000) 500 early and convalescent cases requiring supervision and graduated work during a period of time sufficient to restore them to full working capacity. Institutions for this class of patients are usually called convalescent-farms or work-colonies.

The Monetary Loss From Tuberculosis.

Major Ross, the head of the Liverpool School of Tropical Medicine states as a general sanitary axiom that "for economic reasons alone, governments are justified in spending, for the prevention of diseases, a sum of money equal to the loss which those diseases inflict on the people."

As a corollary he adds that "the amount of money spent on the prevention of various diseases should, other things being equal, be proportioned to the amount of sickness and mortality caused by each." Tuberculosis may be safely estimated to cost the citizens of California millions of dollars annually. Entirely aside from the humanitarian side of the problem, the State could make no more profitable financial investment, than the inauguration of adequate measures for the prevention and control of tuberculosis. Just as chambers of commerce and development boards estimate that each new colonist means ** added to the total wealth of the State, so economists of world-wide reputation estimate that every citizen, who becomes a victim of tuberculosis, and dies, means \$3,700 subtracted from the wealth of the State. And this loss is particularly a loss to the State or community as a whole, because tuberculosis very largely selects its victims among

*It has been the policy of the Commission to present throughout the report, minimum estimates. The figures in parentheses are believed by many members of the Commission to be a conservative average.

**As a working basis development associations consider the State can afford to pay \$1,000 for every family brought to California, but this does not represent the full addition to the total potential wealth of the State, which each new family represents.

the young married persons of the low-wage working classes. This means public expense for illness, relief and orphans, *and for the results of extension of the disease to others of the same group of citizens.*

The county and other public hospitals alone, maintain over 1,000 beds for tuberculous patients. At \$40 per month cost this totals an annual expenditure of approximately \$500,000, without accomplishing either the restoration of the patients to health and self-support, or the prevention of infection of other members of the patients' families or the community. If convalescing institutions were provided in connection with the county hospitals, this condition could be largely obviated. The reports of tuberculosis societies and charity organizations show that upwards of \$467,000 is collected annually in California for private aid for tuberculosis patients. This sum likewise is expended without adequate effect on reducing the prevalence of the disease. The National Conservation Commission estimates the economic loss on each life to be not less than \$1,700. The 5,000 deaths from tuberculosis each year in California therefore represent an economic loss of over \$8,500,000.

The statistical sections of the Commission's report include full data on the economic factors in the tuberculosis problem.

The Loss Which Is Greater Than Money.

The one great fact which overshadows all else is the needless amount of suffering, sorrow, and human heartache endured by those who are daily dropping out of their successful careers, just begun, and from their happy homes amongst us, to drift awhile, before the victory of the tubercle bacillus is complete and they are required to leave a young family destitute, or unprepared and probably similarly infected.

The General Basis For Administration Plans.

Any plan worthy of consideration as a basis for combatting tuberculosis should cover the following essential points:

1. It should be based on the scientific facts and limited to those methods which experience has proved to be effective.
2. It should be practical, financially sound, and in accordance with California law.
3. It should embrace all phases of the problem and be sufficiently elastic to be applicable to the entire State.
4. Within reasonable limitations, it should provide the best methods of treatment for all persons developing the disease.
5. It should provide an expert state organization for supervision and control of all tuberculosis work, public and private, throughout the State.

To these principal conditions may be added the following:

6. That plan should be adopted which causes the public the least inconvenience.
7. The plan adopted should make the fewest possible demands on the thoughts, efforts or compliance of private persons.
8. It should be the most economical plan which confers, for unit of cost, the widest benefits on the public.
9. All plans considered should include provisions for accurate and repeated measurements of the prevalence of the disease, the cost of the adopted measures, and the results of their application.

10. All plans proposed should correlate and unite so far as may be possible, the activities of the many associations, officers and individuals now working with the problem. This necessitates a large amount of latitude and elasticity in order to suit the varying local conditions throughout the State.

The Essential Factors in a State Plan.

In accordance with this view, the scheme which the Commission desires to recommend for the prevention, detection and treatment of the disease is intended to complement existing public health administration in respect to tuberculosis, and is based on the establishment and equipment of two units related to the general public health and medical work carried on by the health and hospital officials, and working in harmony with the general practitioner. The First Unit consists of the tuberculosis dispensary. The Second Unit consists of the hospitals, sanatoria, etc., in which institutional treatment is given, and of the work colonies, etc., which may be established. The precise functions of these units of organization are dealt with more fully under the next subheads of this abstract. The Commission is of the opinion that the tuberculosis dispensary should be the common center for diagnosis, for the organization of treatment of tuberculosis, and for the bringing together of the various associations and persons connected with the campaign against tuberculosis in each district reached by the dispensary. The aim should be that no single case of tuberculosis should remain uncared for in the district, and that whatever services the scheme provides should be available for all cases of the disease.

Next to the tuberculosis dispensary should stand the second unit, consisting of a system of hospitals, sanatoria, farm colonies, open-air schools, etc. The tuberculosis dispensary should be linked up to these institutions for which it will act as a clearing house.

In addition to these two units of administration there must be some State authority having full control of the entire work. Your Commission, therefore, recommends the establishment of a State Bureau of Tuberculosis under the direction of a full time, fully qualified medical officer, who shall administer the affairs of the Bureau, subject to the supervision of a board of five members to be appointed by the Governor, or as a Bureau within the State Board of Health. The Commission believes the latter plan is advisable, from an administration point of view, and that possibly both plans might with advantage be combined.

The First Unit—The Dispensary.

In a general way, the dispensary should serve as the community agency for obtaining accurate and early information concerning all tuberculosis patients within the State and all conditions related to the detection, prevention and alleviation of suffering from, tuberculosis. The chief business of the dispensary, however, should be the diagnosis of the disease and furnishing of careful disinterested advice to each patient.

The Commission suggests for the administration of the dispensary a system that will cover, (a) urban districts; (b) rural districts. For urban districts it is suggested that every city, and every town containing a population of ten thousand or more, as determined by the latest *United States census*, should establish and maintain within its limits a

dispensary for the discovery, treatment, and supervision of persons resident within its limits and afflicted with tuberculosis, unless there already exists in such city or town a dispensary which is satisfactory to the State Bureau of Tuberculosis.

2. That the directors of dispensaries devote their full time to the work and be deputed as agents of the State Bureau of Tuberculosis and if practicable be paid by the State.

3. That where two or more cities of 10,000 or over, or cities and county, or other units of population desire to combine for the more economical administration of the dispensary system, this should be permissible subject to the approval in advance by the Director of the Bureau of Tuberculosis.

For rural districts it is suggested that a traveling dispensary service be organized, largely along the lines of the successful rural dispensary system used in the southern states in combating hookworm.

These dispensaries should be easy of access to the working people and the most congested centers of population. The Commission desires to emphasize its opinion that there is no danger of infection being conveyed from the dispensaries to the occupants of neighboring houses.

The essential element which must always be present is the chief tuberculosis officer. Each dispensary should be adapted to its environment and to the existing tuberculosis agencies and ordinances of the community in which it is located. In general buildings already constructed may be found which can be adapted to the purposes of a dispensary. The cost of equipment will approximate \$600 as a minimum. The Commission estimates that one full time physician can properly examine for dispensary purposes, an average of six patients per day, and with the assistance of one trained nurse can carry on the professional work of a dispensary based on that maximum number of new cases per day. The other employees and assistants required will vary according to the work carried on from the dispensary as a center. The annual salary of a full-time dispensary physician should be not less than \$2,500, and that of a head dispensary nurse not less than \$1,200.

While the number of dispensaries and the size of the staffs required, is entirely problematical, it is believed that there should be at least one dispensary open daily, in each city of over 25,000 population. In smaller cities a dispensary service for one or more days per week should be provided. The traveling dispensary service for rural districts in populous areas with no towns above five thousand inhabitants should provide a dispensary service of one to two days per month in each branch service established.

There is probably need for 15 main dispensaries with branches and traveling-dispensary services, to cover the entire State. Each dispensary would cost upwards of \$10,000 per year, making a total of at least \$150,000 annually for support. The principal items making up this expense would be approximately as follows:

Chief medical dispensary officer (full time)-----	\$2,500 00
Head dispensary nurse (full time)-----	1,200 00
Dispensary stenographer and record clerk (full time)-----	900 00
Janitress and general attendant (full time)-----	600 00
Maintenance (supplies, heat, light, water, etc.)-----	1,200 00
One staff nurse for branch dispensary service (full time)-----	1,000 00
Traveling expense -----	200 00
Assistant medical officers (part time), or one full time traveling-dispensary officer -----	2,400 00

COMMISSION ON TUBERCULOSIS AND RESPIRATORY DISEASES
OF THE STATE OF NEW YORK
FOR THE YEAR 1917

THE TUBERCULOUS PATIENT IN THE HOME

The Commission has endeavored to present a picture of the tuberculous patient in the home as it is at present, and to show the possibilities of improvement.

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The details of administration of this immense problem must necessarily be left to the Commission for future study and development by the Bureau of Tuberculosis or whatever authorities the State may provide to take charge of it.

The following description of the various subdivisions of this second part is intended to present a brief survey of the part each may be made to play in the general scheme presented for the treatment and prevention of tuberculosis.

Observation Wards, Day Camps, Forest Schools, etc.

In abstracting the Commission's report the sections on these subjects have been omitted as a whole. The purpose of the Commission in these sections is to show the wide range of possibilities in providing early care for tuberculous patients in their home environment, if strong dispensary services are created to make possible the necessary supervision of each case required if good results are to be obtained. It is realized by the Commission that the development of these valuable institutions will probably be a matter of private philanthropy for some years at least, but their place in the general scheme is so important that they are given due consideration.

Hospitals and sanitariums will, however, constitute a part of the equipment of any plan which may ultimately be adopted. Therefore the sections of the Commission's report on these subjects have been briefly abstracted in the following sections:

Sanatoria—Construction and Maintenance.

Sanatoria will necessarily constitute a part of the equipment of any plan for an adequate system of tuberculosis control. In general, the following factors are important in providing for each sanatorium:

1. *Site.*—The sanatorium should be within easy access of the center of population of the district to be served. This is desirable for economy of administration, accessibility both for medical consultants and visitors, and the best coöperation between dispensaries and the sanatoria. These reasons are, however, less important for sanatoria than for hospitals for the advanced cases.

There should be 160 to 320 acres for each sanatorium, if possible, although local conditions will govern this factor. Good soil, adequate drainage, abundant water supply, and protection from the prevailing storm-winds are important.

2. *Unit of Size.*—For economic reasons, a sanatorium should provide for not less than 100 patients. For reasons of efficient administration in the best care and treatment of patients, it should provide for not more than 150 patients.

3. *Number of Sanatoria Required.*—Experience in various countries and several other states indicates that one sanatorium bed for each 5,000 of population is a fair estimate. For California, therefore, this would indicate 500 patients, or approximately three institutions at the present time; but the number requiring public assistance would at first probably be somewhat less than this number. It is believed by the Commission that two sanatoria might cover the present need adequately.

4. *Cost of Construction.*—This will vary according to the plan adopted. Probably \$250 to \$500 per bed provided, will cover the range between an inexpensive administration building with "tent-houses," and the more expensive "pavilion" and "cottage" types. This means \$37,500 to \$75,000 for each sanatorium, exclusive of cost of land, farm buildings and special equipment. The total cost therefore for each sanatorium accommodating 150 patients would probably be between \$60,000 and \$100,000.

5. *Cost of Maintenance.* General experience would indicate a probable cost of \$40 to \$60 per month per patient. This factor will of course vary in each institution and in accordance with the number of patients, the current market value of foods, etc. No estimate below \$40 is conservative. This means approximately \$500 per year per bed, or \$75,000 per year to maintain a sanatorium of 150 beds at its maximum capacity.

Hospitals—Construction and Maintenance.

Hospital accommodations (by which is meant nursing and institutional facilities for those tuberculous patients, who are confined almost continuously to their beds and require much more attention than sanatorium patients) are required for a large number of patients.

The discussion of hospitals for tuberculous patients requires first the adoption of a viewpoint. If new institutions are to be built and

operated apart from hospital wards for other diseases, the factors of site, unit of size, cost of administrative blocks, etc., will be important; but if advanced cases of tuberculosis are to be provided for in special wards of general county or municipal hospitals these factors are already covered. It is the opinion of the Commission that existing accommodations for advanced cases should be utilized so far as possible. The treatment of advanced cases does not call for hospitals of a special type, and so far as possible the accommodation should be in separate wards in connection with hospitals for other diseases. There are many arguments in favor of this policy. Among these may be mentioned—greater economy in administration; ready accessibility to friends (an essential factor if patients in the last stages of the disease are to be kept from returning home to infect their families); centralization of responsibility, adequate nursing; etc.

In so far as may be practicable, the State should be districted, and those counties that already have made good beginnings in providing tuberculosis pavilions for their county hospitals should be made the basis for increasing the capacity of the pavilions to cover the needs of all the counties in the district. Laws enabling counties to enter into arrangements for the care of advanced tuberculous patients in this manner should be passed. This is essentially the principle of the union high school.

1. *Site*.—It is especially desirable that the hospitals which provide care for the more advanced cases should be located near the center of population to be served in order that they may be accessible both in time and expense of travel. Extensive grounds are a less important factor than the site for a sanatorium, as these cases can have very little exercise, but do require a good deal of nursing. In general, an equable climate, large number of days of sunshine, attractive environment, etc., are desirable. If new buildings are to be constructed these factors should all be given careful consideration, and in so far as practicable, the selection of county hospitals for district organization should take the same factors into account.

2. *Unit of Size*.—This factor is less important than in the planning of sanatoria. The problem is not essentially different administratively from that of hospital provision for other diseases. Open-air type of construction with convenient service rooms, and several rooms or small wards permitting emergency and severe cases to be quietly removed from the larger wards are necessary. In general, economy of construction will indicate two-ward pavilions with complement of service rooms for sixty patients. If rigid economy is necessary there is no serious objection to making two story pavilions, thus accommodating one hundred and twenty or more patients under one roof.

Administratively there is no maximum limit for good service to the patients, as there is for the administration of sanatoria.

3. *Number of Hospitals Required*.—This will depend on the policy adopted, and very largely upon the density of population and the radius of inexpensive travel facilities. Probably 50 to 75 miles and a round trip travel-fare of \$1.00 to \$2.00 is the maximum area for the successful operation of a tuberculosis hospital for advanced cases.

The Commission estimates that the State requires for this class of patients, approximately one bed for each 1,600 of population. This would require about 1,500 beds. If 20 of the county hospitals were selected for the care of these patients, there would be an average distribution of 75 patients to each, or as a practicable distribution, 120 patients to each of six and 60 patients to each of the remaining fourteen, according to population and index of infection in each district. By "index of infection" is meant the number of cases of tuberculosis per unit of population.

The condensed table on the following pages will illustrate some of the factors entering into the question of the number of hospitals required. If those counties showing an average of over 190 deaths per 100,000 population for the five year period, be compared on the basis of density of population, they show a variation from 2.8 to 8,870 inhabitants per square mile, but one of these extreme counties is all city and the other largely desert. The county with only 2.8 inhabitants averaged per square mile, has over 55 per cent of its population in cities of over 2,500 population. With only two exceptions (Alameda and Santa Cruz) the counties having less than 190 tuberculosis deaths per hundred thousand population, also have less than fifty per cent of their population in cities of 2,500 and over. The Commission has collected local data bearing on this subject in each of the fifty-eight counties.

This illustration is included to show the important bearing of economic and social factors in determining the number and location of hospitals for tuberculosis. An analysis of these factors shows the following to be important:

1. Migration from other states.
2. Presence of state hospitals and prisons with their large number of inmates and high tuberculosis incidence.
3. Bad housing conditions.
4. Migration from city to suburbs.
5. Conditions in deep gold mines and in various occupations favoring development of the disease.
6. General municipal conditions involving labor, wages, hours of employment, food, sanitation, vice, etc.

Table Showing Prevalence in California, by Counties, 1907-1911.

Key to positions of counties in next column.	Counties arranged in order of prevalence of deaths from tuberculosis, according to population.	Estimated mid-year population, 1911	Average number of deaths from tuberculosis per 100,000 population, 1907-1911	Average density of population per square mile	Per cent of population in cities of 2,500 and over	Chief Industries.	Remarks.
Alameda (19)	1. San Bernardino	60,227	871.9	2.8	55.5	Citrus fruits, vegetables and stock, industrial shops, railroad center.	Many cases imported from other states. State hospital.
Alpine (58)	2. Riverside	36,752	272.1	4.7	54.0	Citrus fruits	Many cases imported from other states.
Amador (9)	3. San Joaquin	52,983	263.1	36.3	51.2	Hay, vegetables and dairying, labor center.	Labor center. Bad housing conditions. State hospital.
Butte (30)	4. Napa	20,210	259.3	25.4	29.2	Grapes, wine, fruit, dairying	High rate due to State hospital and other institutions.
Calaveras (31)	5. Los Angeles	544,980	242.1	120.0	81.7	Horticulture, mercantile and manufacturing; tourist center.	Many cases imported from other states.
Colusa (47)	6. Sacramento	70,485	233.0	67.8	65.9	Farming, fruits, vegetables, dairying; railroads, manufacturing.	Labor center. Bad housing conditions. State prison.
Contra Costa (45)	7. San Diego	65,660	225.7	9.9	64.2	Fruit and stock	Many cases imported from other states.
Del Norte (50)	8. Santa Clara	88,393	213.5	65.0	45.2	Fruit and grain	Many cases come from San Francisco and Oakland.
El Dorado (20)	9. Amador	9,083	209.0	14.3	None	Mining (gold)	Percentage is high among gold miners.
Fresno (25)	10. Nevada	14,935	200.1	15.4	48.2	Mining (gold) and fruit	Percentage is high among gold miners.
Glenn (52)	11. San Francisco	425,983	194.9	8870.0	100.0	Commercial and manufacturing	Municipal problem. Bad housing conditions.
Humboldt (40)	12. Yuba	10,216	193.8	15.8	54.1	Mining, lumbering, hops, stock, hay.	Labor center. Hop fields.
Imperial (49)	13. Tehama	11,451	190.4	3.8	31.0	Farming, stock raising, lumbering, mining.	Miners.
Inyo (57)	14. Lake	5,526	173.7	4.2	None	Mining and summer resorts	Many deaths among Indians.
Kern (22)	15. Ventura	18,834	173.1	10.7	30.0	Farming, fruit and stock	Some imported cases.
Kings (33)	16. Tuolumne	9,979	170.4	4.5	None	Mining, grain, hay, stock	Many deaths among miners.
Lake (14)	17. Marin	26,266	167.5	45.8	33.8	Dairying; suburban residents	Many cases sent here from San Francisco. State prison here.
Lassen (55)	18. Sonoma	49,607	164.9	29.9	28.3	Fruits, wines, grain, hops	Labor center. Hop fields.
Los Angeles (5)	19. Alameda	260,317	162.0	322.0	90.5	Manufacturing, fruits, vegetables	Municipal problem.
Madera (39)	20. El Dorado	8,492	160.2	4.2	None	Mining and stock raising	Many deaths among miners.
Marin (17)	21. Santa Barbara	28,815	156.8	10.5	42.0	Grain, fruit, nuts; winter tourists	Some imported cases.
Mariposa (36)	22. Kern	40,313	153.9	46.9	33.7	Oil, iron, farming, stock	Labor center.
Mendocino (27)	23. San Luis Obispo	19,919	153.6	5.9	26.6	Hay, cattle	Labor center.
Merced (44)	24. Santa Cruz	26,706	152.0	61.7	59.6	Fruit, grain and dairying	Some migratory cases from bay cities.
Modoc (56)	25. Fresno	80,282	152.0	12.3	38.5	Fruit, wines, grapes, raisins	Labor center.
Mono (53)							
Monterey (34)							
Napa (4)							
Nevada (10)							
Orange (26)							
Placer (32)							
Plumas (51)							
Riverside (2)							
Sacramento (6)							

San Benito (28)	26. Orange	36,240	148.0	45.9	40.6	Fruit growing	A few imported cases.
San Bernardino (1)	27. Mendocino	24,353	147.8	6.6	None	Lumber, mining	State hospital here.
San Diego (7)	28. San Benito	8,213	146.1	5.8	None	Farming and stock raising	Labor center.
San Francisco (11)	29. Shasta	19,116	144.4	4.9	18.9	Lumbering, mining, stock raising	Many cases among miners.
San Joaquin (3)	30. Butte	28,547	143.6	16.4	27.9	Manufacturing and farming	Labor center.
San Luis Obispo (23)	31. Calaveras	9,171	135.2	8.5	None	Mining	Many cases among miners.
San Mateo (43)	32. Placer	18,537	134.9	13.4	14.3	Mining and fruit growing	Labor center. Some cases among miners.
Santa Barbara (21)	33. Kings	17,008	132.9	16.5	29.8	Fruit	Labor center.
Santa Clara (8)	34. Monterey	24,729	131.8	7.2	35.9	Farming and dairying	Bad housing in population centers.
Santa Cruz (24)	35. Solano	27,977	123.7	30.6	41.1	Grain and fruit	Population center has many cases.
Shasta (29)	36. Mariposa	3,956	121.3	2.6	None	Grain, dairying	Rural population.
Sierra (54)	37. Trinity	3,301	121.2	1.0	None	Gold mining and lumbering	Miners.
Siskiyou (46)	38. Yolo	13,964	118.9	14.0	22.9	Grain, fruit, dairying, etc.	Many transient laborers.
Solano (35)	39. Madera	8,613	116.1	4.1	None	Lumber, farming, stock, etc.	Rural population.
Sonoma (18)	40. Humboldt	34,683	115.3	9.7	35.0	Lumber, dairying, stock	Most cases in population center.
Stanislaus (42)	41. Tulare	37,528	114.6	7.2	28.6	Fruit, farming	Many laborers.
Sutter (48)	42. Stanislaus	24,109	114.5	15.5	17.9	Livestock and grain	Transient laborers.
Tehama (13)	43. San Mateo	28,358	112.1	61.3	16.5	Farming, dairying, lumber	Many San Francisco business men live here.
Trinity (37)	44. Merced	15,874	107.1	7.8	20.5	Farming	Agricultural population.
Tulare (41)	45. Contra Costa	33,342	104.9	43.5	21.5	Manufacturing, grain, vegetables, stock, etc.	Many residents live in Oakland.
Tuolumne (16)	46. Siskiyou	19,026	104.1	3.1	None	Lumbering and mining	Some cases among miners.
Ventura (15)	47. Colusa	7,777	97.7	7.1	None	Farming and stock raising	
Yolo (38)	48. Sutter	6,882	94.2	10.2	None	Fruit, grain and dairying	In these counties the population is rural, most of the inhabitants living out-of-door lives.
Yuba (12)	49. Imperial	14,511	89.6	3.3	None	Farming	
	50. Del Norte	2,418	82.7	2.4	None	Dairying, lumber, mining	
	51. Plumas	5,333	82.5	2.0	None	Mining, lumber	
	52. Glenn	7,419	59.3	5.6	None	Grain and live stock	
	53. Mono	2,042	49.0	0.7	None	Grazing	
	54. Sierra	4,108	48.7	4.3	None	Lumbering and mining	
	55. Lassen	4,838	33.1	1.1	None	Farming, lumber, stock	
	56. Modoc	6,327	31.6	1.7	None	Lumber and cattle	
	57. Inyo	7,292	27.4	0.7	None	Grazing	
	58. Alpine	309	None	0.4	None	Mining, grazing	

4. *Cost of Construction.*—If pavilion additions to existing county hospitals are adopted, the cost of administration buildings will be eliminated. The type of pavilion chosen will determine the cost, but for California conditions an estimate of \$300 to \$700 per bed (exclusive of any cost for central administrative buildings and equipment) is considered ample.

5. *Cost of Maintenance.*—This factor will depend on local conditions, on the local markets, on the cost of nursing (*i. e.*, whether conducted as part of a general institution maintaining a training school for nurses) and other administrative factors. However, with strictest economy the cost can not be reduced below \$1.00 per day per patient, and should not be above \$1.50 per patient. This is \$30 to \$45 per month, or between \$350 to \$500 per year per bed occupied. For two pavilion wards providing sixty beds in a county hospital this would mean an annual expenditure of \$21,000 to \$30,000. For the estimated 1,500 beds required for the entire State the annual expenditure would probably approximate \$600,000 per year.

Private Sanatoria.

So far as possible, existing private and charitable institutions for tuberculosis—sanatoria, colonies, homes, dispensaries, etc.—should be encouraged and coöperated with, provided they fulfill the following conditions:

1. That they be approved as suitable by the bureau of tuberculosis, or whatever State authority may be created.
2. That their aims, purposes and methods of management are in accord with the general plan which may be adopted by the State for the control and prevention of tuberculosis.
3. That they be licensed by the State and be subject to inspection. The present state law authorizing county supervisors to send county tuberculosis patients to private institutions and to pay one dollar per day for their care should be amended to read \$10 or less per week.

Convalescent Farms and Work Colonies.

There is some difference of opinion among tuberculosis experts, concerning the utility of farms and colonies. The Commission, however, believes that in California such institutions would be useful. Convalescent patients and those cases fortunate enough to be detected in the very early stages, need expert supervision and strict discipline in regard to what they may and may not do in matters of food, rest, sleep, exercise, work, etc.; but they do not need to be idle. Graduated work adapted to each patient's strength, condition, and industrial training or capability, is an important therapeutic agent. As previously stated, the Commission estimates that provisions for 500 such cases are required in California.

1. *Number of Work Colonies Required.*—As a basis for considering this factor, the Commission suggests 100 patients as a convenient unit for administration. The colony should not be so large that the "home atmosphere" and general acquaintance possible among small groups of people, becomes impossible. The personal and stimulating influence of the officers of the colony should extend to every patient.

There has been during the past few years a general reaction against the indiscriminate prescribing of farm, or other outdoor labor occupations for all convalescent tuberculous patients. Investigations and the follow-up histories of many cases seem to indicate that with some patients a return to their original occupation under the best of factory and home sanitary conditions is best. The Commission suggests that the establishment of work colonies should provide a certain range of activities. For example, on the basis of 100 patients per colony, five colonies would probably be required in California. These might be distributed as follows:

One farm colony in the Sacramento Valley.

One fruit colony in southern California.

One forestry colony in the mountains of California.

One industrial colony accessible to the center of population in southern California.

One industrial colony accessible to the center of population about the San Francisco Bay.

2. *Cost of Purchase and Equipment.*—The cost of establishing each farm colony would vary according to location, character of activities, and type of buildings provided. The following figures are given as illustrating the principal items for consideration:

Building for kitchen, dining-room and guest room-----	\$5,000 00
Building for office and nurses' residence-----	3,000 00
Building for foreman's cottage and employees' rooms-----	2,000 00
Sleeping "shacks" for one hundred patients at \$100-----	10,000 00
Other necessary buildings for the colony-----	5,000 00
	<hr/>
	\$30,000 00
Land—Fifty to five hundred acres at \$40 to \$100 per acre-----	20,000 00
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	\$50,000 00

These figures indicate a probable total outlay of at least \$250,000 for the first cost of five farm or work colonies.

3. *Maintenance of Work Colonies.*—The following estimate is included to illustrate a reasonable basis for calculation:

Attending physician (consulting or visiting physician)-----	\$800 00
Head nurse (supervisor of colony)-----	1,200 00
District nurse (supervisor of diets and records)-----	1,000 00
Chief cook (in charge of the kitchens)-----	1,000 00
Foreman (in charge of the work of colony)-----	900 00
Maintenance (104 persons at 30 cents per day supplies)-----	11,232 00
Special labor, traveling expenses and other items-----	3,868 00
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	\$20,000 00

The annual cost of maintenance would require each patient to earn, or do work equivalent to, \$16.50 per month, if the colony were to be made self supporting. If five hundred acres of land were available, sufficient labor to produce \$40 per acre per year profit would maintain the colony. The experience of a number of such colonies would indicate that self support is not inconsistent with the best care of this class of patients. Provisions for patients of this class being accompanied by members of their families should be considered and accommodations for special treatment of patients requiring temporary return to bed should be provided.

Tuberculosis in State Institutions.

The report deals with the control of tuberculosis in the state prisons, insane hospitals, and other institutions, and makes suggestions relative to this phase of the problem. The contents of this section are omitted in this abstract, except for the following suggestion regarding medical internships. The payment scheme proposed is probably applicable to procuring good men for the sanatoria and hospitals discussed in the report. Internships are suggested with an annual salary divided as follows:

First to third month, inclusive, at \$50	\$150 00
Fourth to sixth month, inclusive, at \$75	225 00
Seventh to ninth month, inclusive, at \$125	375 00
Tenth to twelfth month, inclusive, at \$150	450 00
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	\$1,200 00

Other items of this section are the transfer of all tuberculous patients in each group to one institution of the same character, and establishment of receiving wards.

The Total Cost of the Scheme.

From the foregoing discussion the following figures are assembled in order to give a general idea of the estimated total expense involved in a plan such as the Commission proposes:

	Estimated cost of permanent equipment.	Annual estimated cost of maintenance.
Dispensaries (15)	\$10,000 00	\$150,000 00
Sanatoria (2)	150,000 00	150,000 00
Hospitals	750,000 00	600,000 00
Farm colonies (5)	250,000 00	100,000 00
Totals	<hr/>	<hr/>
	\$1,160,000 00	\$1,000,000 00

The "Consumptives" History.

The report of the Commission outlines the insidious onset of tuberculosis and its great economic and social importance because the period of its great activity is roughly between twenty to thirty-five years—after its victims have become men and women and often parents, but before they have provided any competence to tide them over sickness, loss of work and death. The argument on which the Connecticut law is based is cited, as illustrating the soundness of the view that the State is responsible for the protection of its citizens against infection and ravages of tuberculosis. The argument of the Connecticut law is built up on the accepted principle that a citizen has the right to look to the State for the protection of his property. Tuberculosis is a disease which is especially prevalent among those members of the community whose chief property asset consists of their ability to labor, which is, in turn, completely dependent on the continuance of good health.

The 1911 National Health Insurance Act of England recognizes this principle, and provides for the assumption by the State of this protection for one third (15,000,000) of the population of Great Britain.

This section of the report also brings out with emphasis the wide

range of persons and localities exposed to each individual "consumptive" in the course of the average case.

The Migration of Tuberculosis Patients.

The Commission's report covers a large amount of valuable data on the migration of tuberculous patients. The following condensed tables and diagram give some information on this subject:

Annual average number and per cent distribution by length of residence in California of deaths from tuberculosis by geographical division for California: 1907-1911.

	Less than one year.		1 to 9 years.		10 years and over.		Life.		Unknown.	
	Num-ber.	Per cent	Num-ber.	Per cent.	Num-ber.	Per cent.	Num-ber.	Per cent.	Num-ber.	Per cent.
Northern and Central California (north of Tehachapi).....	99	3.5	370	13.2	801	23.7	1,086	38.4	458	16.2
Southern California (south of Tehachapi)	329	17.0	734	37.9	368	18.9	314	16.2	191	10.0
The State	428	9.0	1,104	23.2	1,169	24.8	1,401	29.4	649	13.6

Some idea of the large number of advanced cases that migrate to Southern California from other States may be learned from the above table. Seventeen per cent of tuberculosis deaths in that part of the State are of residents of less than one year's standing and 37.9 per cent have lived there less than ten years, as against 3.5 per cent and 13.2 per cent for the corresponding groups in Northern and Central California. It should be noted that the percentage for life residents in Northern and Central California (38.4) is almost identical with that of residents of less than ten years (37.9) in Southern California.

The following contrasted death rates for Northern and Southern California are interesting and suggest further careful investigation. It will be noted that the death rate among the native born population is markedly lower in Southern California than in Northern California. Among other inferences that may be drawn from this is that the increased prevalence of tuberculosis in Southern California does not lead to an increased rate of infection among the native born population.

Residents of less than 1 year—	
Rate per 100,000 population, Northern California.....	6.9
Rate per 100,000 population, Southern California.....	43.8
Residents of from 1 to 10 years—	
Rate per 100,000 population, Northern California.....	22.8
Rate per 100,000 population, Southern California.....	97.6
Residents of ten years and over—	
Rate per 100,000 population, Northern California.....	49.0
Rate per 100,000 population, Southern California.....	49.2
Life residents—	
Rate per 100,000 population, Northern California.....	66.8
Rate per 100,000 population, Southern California.....	41.8
Life residents and therefore ten years and over—	
Rate per 100,000 population, Northern California.....	116.0
Rate per 100,000 population, Southern California.....	90.8

Number and per cent distribution by length of residence, of deaths from tuberculosis for Southern California: 1907-1911.

Year.	Under 1 year.		1 year.		2 years.		3 years.		4 years.		5 years.		6 years.		7 years.		8 years.		9 years.		Total, 1 to 9 years.	
	Num- ber.	Per cent.	Num- ber.	Per cent.	Num- ber.	Per cent.	Num- ber.	Per cent.	Num- ber.	Per cent.	Num- ber.	Per cent.	Num- ber.	Per cent.	Num- ber.	Per cent.	Num- ber.	Per cent.	Num- ber.	Per cent.	Num- ber.	Per cent.
1907-----	330	18.4	166	9.1	143	7.8	111	6.1	89	4.9	54	2.9	52	2.8	44	2.4	23	1.3	13	0.7	695	38.0
1908-----	308	17.3	124	7.0	109	6.1	97	5.4	92	5.2	75	4.2	48	2.7	33	1.8	32	1.8	18	1.0	628	35.2
1909-----	305	16.4	110	5.9	101	5.4	105	5.6	103	5.7	93	5.0	61	3.3	57	3.0	53	2.8	31	1.7	717	38.4
1910-----	326	16.4	125	6.3	114	5.8	118	6.0	93	4.7	104	5.2	64	3.2	80	4.0	66	3.3	32	1.6	796	40.1
1911-----	369	16.6	146	6.6	113	5.1	120	5.4	79	3.6	102	4.6	76	3.4	80	3.6	75	3.4	43	1.9	884	37.6
Totals-----	1,646	-----	671	-----	580	-----	551	-----	459	-----	428	-----	301	-----	294	-----	249	-----	137	-----	3,670	-----
Averages-----	329	17.0	134	7.0	116	6.0	110	5.7	92	4.8	86	4.4	60	3.1	59	3.0	49	2.5	27	1.4	734	37.9

The above table indicates that the percentage of deaths from tuberculosis in Southern California for those who have lived there less than ten years is highest for those who have lived in the State for one year, slightly lower for those who have been residents two years, decreasing with each added year to length of residence until it is but 1.4 per cent for residents of nine years.

The committee reports of investigations concerning the economic and sociologic conditions of tuberculosis decedents who have been residents of the State for a short time, are not complete, but considerable data of the sort will be included in the final report of the Commission. Approximately 5,000 deaths are being investigated for the purpose of learning the important economic details concerning each individual. Efforts are being made to learn of the financial loss, number of dependents, probable source of infection, predisposing factors, presence of the disease in the members of the family, and many other facts concerning the development and fatal termination of the disease in relation not only to the decedent, but also to his family and society.

Number and per cent distribution by length of residence, less than one year, of deaths from tuberculosis in Southern California: 1907-1911.

Year.	Less than one month.		1 to 2 months.		3 to 5 months.		6 to 11 months.		Total, less than one year.	
	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.
1907 -----	43	2.4	97	5.3	92	5.0	105	5.7	337	18.4
1908 -----	86	2.0	81	4.6	96	5.4	95	5.3	308	17.3
1909 -----	37	2.0	93	5.0	78	4.2	98	5.2	306	16.4
1910 -----	34	1.7	89	4.5	106	5.3	97	4.9	326	16.4
1911 -----	35	1.6	95	4.3	103	4.6	136	6.1	369	16.6
Totals -----	185		455		475		531		1,646	
Average -----	37	1.9	91	4.7	95	4.9	106	5.5	329	17.0

This table gives a more detailed analysis of the 17 per cent who have resided in Southern California for less than one year. It will be noticed that most of those in this group (5.5 per cent) have lived there for from 6 to 11 months although the percentage in the group for 1 to 2 months and for 3 to 5 months is almost as great. It is worthy of note that an average number of 37 each year have died in this part of the State before having resided there for a single month. This table makes clear the fact that large numbers of advanced cases migrate to this State every year.

The Commission has no final opinion on this serious problem. It is important that there should be no interference with the liberty or movements of any citizen who has the means and the intelligence to travel and reside as a transient in various communities without exposing the general public. On the other hand it is undoubtedly for the best interests of both the patient and the public that the tuberculous individual who does not have the money at his command to purchase proper medical and nursing attention and the essential living accommodations, should not leave his home and friends, without the supervision of the State. The Commission believes that some system of interstate reciprocity should be developed, and that further study will develop ways and means of dealing with this problem. This subject is dealt with at length in the Committee reports.

The Committee Sections of the Report.

Attached to the general report of the Commission are the division reports of the ten committees appointed as follows:

1. Institutional Activities; Administration.
2. Institutional Activities; Construction.
3. School Construction and Health Administration of Schools.
4. Housing Conditions.
5. Sociologic and Economic Conditions.
6. Legal Procedure.
7. Scientific Problems.
8. Educational Measures.
9. Industrial and Commercial Problems.
10. Registration and Disinfection.

These section reports are full of important data bearing on the California problem of tuberculosis, and include facts, figures and references on the details of every part of the main report. For the purposes of this abstract, however, it is not considered practicable to select any extracts from the reports. The general import of these committee reports may be inferred from the general conclusions herewith outlined.

Existing Laws Relating to Tuberculosis.

Before presenting its conclusions and recommendations, the Commission desires to emphasize the fact that there are now on the statute books several laws relating to tuberculosis which have never been adequately enforced throughout the State.

1. It is of first importance that all cases of tuberculosis should be promptly reported, and proper protective measures instituted. There is a state law which makes tuberculosis reportable, and empowers state and local boards of health to make rules and regulations for the control of the disease. Except in special instances this law has never been enforced. The Commission is informed that this is because the people and the doctors have not voluntarily co-operated with health officials in this matter, and appropriations for enforcing the law have not been made. This should be remedied by adequate appropriations or some change in the law.

2. The State laws provide that no person afflicted with tuberculosis may work in any establishment producing, distributing or selling food supplies. The provisions of this act have not been enforced. Unquestionably the state and local health authorities should know and pass judgment on whether the work of tuberculous persons in such establishments is dangerous to the public. The legislature should make adequate provisions for the enforcement of this law.

3. The supervisors of each county are empowered by the present statutes to send certain selected tuberculous patients to institutions approved by the State Board of Health in any part of the State, and to pay one dollar per day toward their support. The supervisors are also empowered to levy a half mill tax on all property outside incorporated towns, to provide a fund for sanitary and public health purposes. Neither of these enabling acts have been utilized by the counties. The legislature should so amend these laws that the county authorities will be obliged to take some active part in dealing with this great problem of combating tuberculosis.

4. The present tenement house laws should be amended and enforced. The proper housing of people in tenement houses, apartments, lodgings and cheap hotels is a most important factor in tuberculosis control.

5. The milk and meat inspection laws of California should be greatly improved and generally enforced. These food supplies undoubtedly play some part in the spread of tuberculosis.

6. There are several other laws that would indirectly influence the prevalence of tuberculosis if they were enforced.

Conclusions and Recommendations.

The general conclusions of the Commission may be abstracted as follows:

1. There should be a correlation of all activities of individuals and organizations—both public and private—that directly or indirectly deal with any phase of the tuberculosis problem.

2. This correlation and the general supervision of tuberculosis control in California can best be accomplished through the establishment of a State Bureau of Tuberculosis.

3. Complete and prompt registration of all tuberculous patients *within the State* should be provided for and systematically carried on.

4. A Tuberculosis Dispensary system should be established which is sufficiently extensive to provide for the examining and advising without charge of any citizen within the State who may apply, in the belief that he or she may have tuberculosis. These dispensaries should serve as the organizing centers for all local work in combating tuberculosis, and as a clearing house for all the institutional cases.

5. After it has been determined that any person applying at the dispensary has tuberculosis, there should be an adequate system for seeing that he obtains the proper treatment. This will mean in many cases that the patient needs to be placed in an institution where he may be carefully observed for a week or longer, in order to determine the exact stage of the disease and the best method of dealing with his case.

Observation wards for this purpose can probably be made available, either in connection with the dispensary service or the county and municipal hospitals.

6. The study of each case in the dispensary or the observation ward will indicate the assignment of the case to one of five groups as follows:

- (a) *Home Cases*—which need dispensary treatment and advice, or proper home treatment under the direction of a visiting nurse from the dispensary.
- (b) *Hospital Cases*—which need to be transferred to the county or other hospitals equipped with wards for receiving advanced cases of tuberculosis. These patients will be the ones who have little or no hope of recovery, but who are a source of danger to their families and the public, if they remain at home or in the lodging houses wherever they may be living.
- (c) *Sanatorium Cases*—which should be sent to an institution where they may receive the special care and direction necessary to arrest the disease and start them back toward health and a working capacity. These will be the early and hopeful cases, in which prompt and proper care will, in the majority of instances, return them to working capacity, or at least produce an arrested stage of their disease.
- (d) *Work Colony Cases*—which are detected very early or arrested and require, principally, proper advice, and a carefully planned schedule of graduated work, rest, sleep, meals, recreation, etc. These cases should at once be transferred to some type of colony or institution where they may be given just as careful training in fighting their disease, as the militiamen get in their annual encampment with the regular troops.
- (e) *Special and Miscellaneous Cases*—not provided for above, which include those cases which are complicated by other diseases, or are non-pulmonary types of tuberculosis, or for other reasons do not belong to any one of the other groups in this provisional classification. These should be provided for in general or children's hospitals.

7. For the proper care of the patients in group (a) (Home Cases) a system of visiting-nurses, day and night camps, open air schools, and

other allied agencies are needed. The administration of these agencies should be closely correlated to that of the dispensaries, or under the supervision of the latter.

The cases in group (b) (Hospital Cases) require in large measure hospital service in pavilion-wards provided with isolation rooms easily accessible to their friends, and under conditions which will prevent infection of other patients or persons. The county hospitals should provide adequate special wards for this group, or enter into agreements with other counties or private institutions to care for their cases.

The cases in group (c) (Sanatorium Cases) require careful medical and nursing treatment. The most economical administrative plan for this group is the provision of district sanatoria. It is important that each sanatorium should not be too large; 150 beds is suggested by the Commission as a maximum. It is estimated that three sanatoria of this size are needed at the present time.

The cases in group (d) (Work-Colony Cases) require proper housing, diet, and supervision of graduated work, during a period of final preparation for return to full working capacity. There is need for several colonies for such cases. These colonies should include both industrial and farming occupations.

The cases in group (e) (Special and Miscellaneous Cases) will require study and distribution among the other groups as the factors in each case may indicate.

8. Every effort should be made to eradicate tuberculosis from State institutions. Proper examination of inmates upon admission, classification and segregation of certain cases are essential.

9. The migration of tuberculosis patients is a perplexing and important problem in California, which should be closely studied with a view to developing some method for control without causing any injustice or undue limitation of liberty of those patients who have the intelligence and means to travel without endangering others.

10. The problem of tuberculosis in California causes millions of dollars loss annually and warrants the adoption of a comprehensive State policy for its control.

Recommendations.—Your committee has endeavored in its report to deal briefly with all important phases of the tuberculosis problem in California, and to present facts and conservative estimates bearing on the various practical questions that arise in discussing its solution.

The committee has not recommended specific legislation because it is not in possession of sufficient information concerning the financial resources of the State and the imperative need of funds for other purposes to know how far the State can go in this matter at the present time. However, it is believed proper to point out the following provisions as urgently necessary in planning a successful warfare against tuberculosis, and to express the hope that the legislature may find it possible this year to at least begin the work.

1. There should be established a State Bureau of Tuberculosis, which should be preferably a department of the State Board of Health. This Bureau should be under the direction of a full time, fully qualified medical officer. There may be also an advisory board of five members appointed by the Governor.

The duties of this Bureau would be:

- a. To supervise all work within the State bearing upon the preventive, curative, and other aspects of the tuberculosis problem;
- b. To advise or direct all local bodies in making provision for the treatment of tuberculosis in sanatoria, hospitals, dispensaries, farm colonies, or other institutions—both public and private;
- c. To advise with the officers of penal and charitable institutions regarding the proper care of tuberculosis inmates;
- d. And to make all necessary rules and regulations for the effective carrying out of the work of the Bureau.

2. Under this Bureau there should be developed an adequate system of tuberculosis dispensaries available for both the city and rural population of the State. These dispensaries would constitute the first line of attack on the disease and would serve as the organization centers for all local control and relief work.

3. The county hospitals should be required to provide ample accommodations for segregating advanced cases in specially adapted or new wards maintained according to a standard set by the Bureau of Tuberculosis; or as alternatives the counties should be required (1) to form districts of two or more contiguous counties for the purpose of providing necessary hospital care for this class of patients; or (2) enter into agreements with private tuberculosis institutions approved by the Bureau as properly equipped to care for advanced cases.

4. The State and the counties should coöperate in some plan for providing district sanatoria for those patients who give promise of restoration to working capacity, or of a permanent arrestment of the disease.

5. Some system of industrial and farm colonies for the proper training of incipient cases and convalescent sanatorium cases should be developed. In addition to these recommendations for direct administrative purposes, there are many associated lines of desirable legislation. These include measures for better tenement houses; for certain phases of labor legislation; for elimination of milk supplies as a factor in spreading tuberculosis; for provision of proper physical examination for schools and factories; and for the many ways of improving living conditions in general.

At present, private contributions maintain a number of dispensaries with their invaluable associated relief work; the counties in some measure care for the most destitute of the advanced cases; the law provides that county supervisors may send patients to approved sanatoria that will accept them at the rate of one dollar per day; and through various benevolent or fraternal organizations, private sanatoria and convalescent colonies are maintained for those patients who do not possess the means to pay for proper care. None of these agencies, however, adequately cover the needs of the State. In fact they do little more than demonstrate, in a practical way, what is necessary to be done.

If the entire program proposed in this report cannot be undertaken by the State at this time, it would seem essential that the following should be provided for:

1. A Bureau of Tuberculosis.
2. Improvement of the county hospital facilities for care of advanced cases.
3. Amendment of the county law permitting county supervisors to pay \$40 per month (instead of \$30), to private sanatoria for selected cases.
4. The appropriation of a fund for use of the Bureau of Tuberculosis for coöperation with the counties in providing district sanatoria or equivalent facilities; and for aid in cases of those indigent patients clearly not "residents" of any one county.
5. Finally, it is recommended that any bill which may be drafted, should contain a provision permitting the acceptance by the Tuberculosis Bureau of special endowments and gifts of money or suitable lands. If possible, also, authority should be granted to use or temporarily to occupy state lands for sanatorium and work colony purposes.

It will be noted from this summarized report that at this time the measures advocated by the Commission lay special stress upon the importance of the county and city governments taking up the tuberculosis problem as a community, rather than as a purely State problem. In other words, the solution cannot be obtained by the separate communities shifting the entire moral and economic responsibility to the State because the county and city communities of the State have themselves very large and very direct moral and economic responsibilities, which they must be prepared to meet if any great measure of success is to be achieved.

Respectfully submitted.

THE TUBERCULOSIS COMMISSION.

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REPORT OF BUREAU OF ADMINISTRATION FOR DECEMBER, 1912.

JOHN F. LEINEN, Director.

Executive Division.

Table showing volume of executive work during December, 1912.

Items.	Total.	No. of subjects.	Adminis- tration.	Morbidity.	Inter- bureau.	Miscel- laneous.
Letters received	1,550	180	520	350	500	180
Letters sent	1,674	180	612	352	560	150
Report blanks sent	1,422	9	260	1,012	150	-----
Reports received	1,204	15	260	724	220	-----
Press clippings, bulletins and newspapers received	1,160	41	200	400	360	200
Accounts audited	157	-----	25	-----	132	-----
Estimates approved, items	161	-----	20	-----	141	-----
Checks issued	198	-----	24	-----	75	99
Miscellaneous communications ad- vising local health officers and communities	225	12	50	80	65	30
Public health literature and bul- letins sent to the public	4,775	-----	175	-----	4,600	-----
Circular letters sent	670	2	-----	500	170	-----
Grand totals	13,196	-----	2,146	3,418	6,973	659

Morbidity report for December, 1912.

Disease.	Cases.	Places.
Poliomyelitis	15	12
Smallpox	86	21
Diphtheria	124	16
Typhoid fever	104	20
Scarlet fever	158	25
Measles	66	9
German measles	1	1
Whooping-cough	6	2
Malaria	18	2
Mumps	155	11
Pneumonia	211	14
Tuberculosis	194	15
Chickenpox	178	13
Dysentery	4	2
Gonorrhoea	7	4
Syphilis	1	1
Tetanus	1	1
Erysipelas	18	5
Cerebro-spinal meningitis	6	3
Pellagra	1	1
Total	1,354	178

Division of Sewage Disposal and Water Supplies.

Two towns which had made formal application for permits for sewage disposal under the Public Health Act of the State of California approved April 1, 1911, were visited by the consulting engineer of the Board and data therein obtained for detailed engineering reports.

During the month a comprehensive study of the Hanford sewage problem was made by the consulting engineer of the Board and a complete report thereon prepared.

The Board continued during the month its study of the Sacramento sewage disposal problem. Mr. C. G. Gillespie was placed in the field

to gather data under the direction of the consulting engineer. By means of an unusual method, the centrifugal sewage pumps were partially rated. During the month of January it is expected that this work will be completed so that a very reasonable estimate of the regimen of sewage flow can be made. A systematic schedule of sewage and river sampling was devised and arrangements made to conduct analytical investigations early in January. In all of this work the Board has received the earnest coöperation of Commissioners Bliss and Wilder and City Engineer Givan.

A careful canvass of all of the cities and towns in the State having sewerage systems was made by the consulting engineer of the Board and with the aid of Messrs. Haviland and Tibbetts of San Francisco, Messrs. Sloan and Robson of San Francisco, Mr. C. P. Jensen of Fresno, Messrs. Olmstead and Gillelen of Los Angeles, Messrs. Dessery and West of Los Angeles, Messrs. Reynolds and Whitman of Sacramento, and Mr. William J. Locke, Assistant Secretary of the League of California Municipalities, these places are being classified with reference to their relation to the Public Health Act approved April 1, 1911, under which the State Board of Health is now operating.

Legal Division.

The Attorney for the Board assisted the Secretary in preparing for presentation to the state legislature thirty bills, which will be introduced during the approaching session.

The Attorney also submitted to the Board a number of verbal and written opinions concerning the department work.

Forty cases were heard for violating the state pure food and drug laws.

REPORT OF BUREAU OF VITAL STATISTICS.*

GEORGE D. LESLIE, Director.

State Totals and Annual Rates.—The following table shows for California as a whole the birth, death, and marriage totals for the current and preceding months in comparison with those for the corresponding months of last year, as well as the annual rates per 1,000 population represented by the totals for the current and preceding months. The rates are based on an estimated midyear population of 2,579,874 for California in 1912, the estimate having been made by the Census Bureau method with slight modifications.

Birth, Death, and Marriage Totals, with Annual Rates per 1,000 Population for Current and Preceding Months for California: November.

Month.	Monthly total.		Annual rate per 1,000 population: 1912.
	1912.	1911.	
November—			
Births -----	3,236	2,722	15.3
Deaths -----	2,992	2,889	14.1
Marriages -----	2,773	2,490	13.1
October—			
Births -----	3,352	3,169	15.3
Deaths -----	2,992	2,590	13.7
Marriages -----	2,907	2,516	13.7

The birth, death and marriage totals for November, as for preceding months, were much greater in 1912 than in 1911. The birth registration has been much greater each month this year than in the corresponding month of last year.

County Totals.—The first table which follows below shows the monthly birth, death, and marriage totals for the principal counties of the State, the list being limited to counties having a population of at least 25,000 according to the Federal Census of 1910. Totals are also shown for San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), as well as for Los Angeles and Orange counties together.

City Totals.—The second of the following tables gives the birth and death totals for the principal freeholders' charter cities, the list including all chartered cities with a census population of at least 15,000 in 1910. Totals are given likewise for San Francisco in comparison with Oakland, Alameda, and Berkeley, the three cities adjoining one another on the east shore of San Francisco Bay, as well as for Los Angeles in comparison with neighboring chartered cities (Long Beach, Pasadena, Pomona, and Santa Monica).

NOTE.—The present report is for the month preceding, but one. This order must be followed hereafter because of the publication of the bulletin during the early part of the month before the tabulation of records for the preceding month is completed.

Birth, Death and Marriage Totals, for Principal Counties: November.

County.	NOVEMBER, 1912.		
	Births.	Deaths.	Marriages.
California	3,236	2,992	2,773
Counties of more than 25,000 population (1910):			
Alameda	295	277	252
Butte	22	33	6
Contra Costa	37	20	21
Fresno	180	84	94
Humboldt	21	22	28
Kern	49	47	37
Los Angeles	866	738	679
Marin	24	24	91
Orange	76	37	117
Riverside	42	53	40
Sacramento	109	109	104
San Bernardino	68	76	60
San Diego	75	96	79
San Francisco	559	539	556
San Joaquin	99	84	46
San Mateo	34	31	37
Santa Barbara	36	34	28
Santa Clara	119	118	94
Santa Cruz	35	27	25
Solano	24	21	11
Sonoma	32	73	26
Tulare	51	34	34
Selected groups:			
San Francisco and other bay counties.....	949	891	957
Los Angeles and Orange counties.....	942	775	796

Birth and Death Totals, for Principal Cities: November.

City.	NOVEMBER, 1912.	
	Births.	Deaths.
Freeholders' charter cities.....	2,056	1,812
Cities of more than 15,000 population (1910):		
Alameda	32	30
Berkeley	72	43
Fresno	54	38
Long Beach	36	28
Los Angeles	617	479
Oakland	181	160
Pasadena	41	38
Riverside	20	29
Sacramento	86	96
San Diego	56	67
San Francisco	559	539
San Jose	47	39
Stockton	67	50
Selected groups:		
San Francisco	559	539
Oakland, Alameda and Berkeley.....	285	283
Totals, Bay cities.....	844	772
Los Angeles	617	479
Neighboring cities	114	94
Totals	771	573

Causes of Death.—The following table shows the classification of deaths in California for the current month, in comparison with the preceding month:

Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths, for Current and Preceding Month, for California: November.

Cause of death.	Deaths. November.	Proportion per 1,000.	
		November.	October.
ALL CAUSES.....	9,992	1,000.0	1,000.0
Typhoid fever	49	16.4	17.0
Malarial fever	6	2.0	6.0
Smallpox	1	0.3	-----
Scarlet fever	2	0.7	1.0
Whooping-cough	10	3.3	8.0
Diphtheria and croup.....	28	7.7	2.7
Influenza	13	4.3	0.3
Other epidemic diseases.....	17	5.7	7.0
Tuberculosis of lungs.....	350	117.0	99.3
Tuberculosis of other organs.....	46	15.4	20.4
Cancer	199	66.5	65.8
Other general diseases.....	139	46.5	41.1
Meningitis	24	8.0	8.0
Other diseases of nervous system.....	207	69.2	82.2
Diseases of circulatory system.....	526	175.8	177.1
Pneumonia and broncho-pneumonia.....	256	85.6	67.2
Other diseases of respiratory system.....	75	25.1	19.4
Diarrhoea and enteritis, under 2 years.....	71	23.7	40.8
Diarrhoea and enteritis, 2 years and over.....	33	11.0	13.4
Other diseases of digestive system.....	170	56.8	63.5
Bright's disease and nephritis.....	190	63.5	61.5
Childbirth	29	9.7	11.4
Diseases of early infancy.....	105	35.1	38.1
Suicide	48	16.0	23.4
Other violence	253	84.6	88.6
All other causes.....	150	50.1	41.8

In November there were 526 deaths, or 17.6 per cent of all, from diseases of the circulatory system, as compared with 396, or 13.2 per cent, from various forms of tuberculosis. Heart disease thus led tuberculosis very much indeed.

Other notable causes of death were: Diseases of the respiratory system, 331; violence, 301; diseases of digestive system, 274; diseases of nervous system, 231; cancer, 199; Bright's disease and nephritis, 190; and epidemic diseases, 121.

The deaths from epidemic diseases were as follows: Typhoid fever, 49; diphtheria and croup, 23; influenza, 13; whooping-cough, 10; malarial fever, 6; and all other epidemic diseases, 20.

The deaths from the four leading epidemic diseases reported for the month were distributed by counties as follows:

Typhoid fever.		Diphtheria and croup.		Whooping cough.	
Butte	1	Alameda	3	Contra Costa	1
Contra Costa	1	Fresno	2	Kern	1
Fresno	5	Kern	1	Los Angeles	8
Humboldt	2	Los Angeles	6	Orange	1
Kern	1	Sacramento	1	San Francisco	3
Los Angeles	11	San Bernardino	2	Siskiyou	1
Mendocino	2	San Diego	3		
Monterey	1	San Francisco	3	Total	10
Orange	1	San Joaquin	1		
Riverside	2	Tehama	1		
Sacramento	4				
San Diego	2	Total	23		
San Francisco	3				
San Joaquin	1				
San Mateo	1	Influenza.			
Santa Barbara	1	Los Angeles	7		
Santa Clara	2	Merced	1		
Solano	1	Sacramento	1		
Sonoma	2	San Diego	1		
Sutter	1	Tulare	1		
Tuolumne	2	Yolo	2		
Ventura	1				
Yolo	1	Total	13		
Total	49				

Geographic Divisions.—The following table presents data for geographic divisions, including the metropolitan area, or San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), in comparison with the rural counties of Northern and Central California:

Deaths from Main Classes of Diseases, for Geographic Divisions: November.

Geographic division.	DEATHS : NOVEMBER										
	All natural.	Nephritic diseases.	Tuberculosis (all forms).	Cancer.	Diseases of respiratory system.	Diseases of circulatory system.	Diseases of respiratory system.	Diseases of digestive system.	Bright's disease and nephritis.	Violence.	All other causes.
THE STATE.....	2,992	121	396	199	231	526	331	274	801	423	
Northern California.....	346	13	33	18	34	■	40	28	27	46	51
Coast counties.....	199	7	23	11	22	32	22	16	19	19	28
Interior counties.....	147	6	10	7	12	24	18	12	8	27	23
Central California.....	1,578	61	171	117	114	291	196	150	85	182	231
San Francisco.....	539	16	68	47	32	112	65	47	25	53	74
Other bay counties.....	352	9	40	29	28	73	31	35	16	38	53
Coast counties.....	188	3	14	15	18	40	27	18	15	15	28
Interior counties.....	499	33	49	26	36	66	73	55	29	56	76
Southern California.....	1,068	47	192	64	83	179	96	96	78	98	141
Los Angeles.....	738	30	142	■	52	120	62	70	54	69	95
Other counties.....	330	17	50	20	31	59	33	26	24	24	46
Northern and Central California.....	1,924	74	204	135	148	347	236	178	112	208	282
Metropolitan area.....	891	25	108	76	60	185	96	82	41	91	127
Rural counties.....	1,033	49	96	59	88	162	140	96	71	117	155

Sex and Age Periods.—The proportion of the sexes among the 2,992 decedents in November was: Male, 1,844 or 61.6 per cent, and female, 1,148, or 38.4 per cent.

The following table shows the age distribution by numbers and per cents, of deaths classified by sex:

Deaths Classified by Sex and Age Periods, with Per Cents by Age Periods, for California: November.

Age period.	Deaths.			Per cent.		
	Total.	Male.	Female.	Total.	Male.	Female.
ALL AGES.....	2,992	1,844	1,148	100.0	100.0	100.0
Under 1 year.....	314	170	144	10.5	9.2	12.8
1 to 4 years.....	111	■	■	3.7	3.6	3.9
5 to 14 years.....	76	43	33	2.5	2.3	2.9
15 to 24 years.....	157	90	67	5.3	4.9	5.8
25 to 34 years.....	282	176	106	9.4	9.5	9.2
35 to 44 years.....	343	219	124	11.5	11.9	10.8
45 to 54 years.....	389	243	146	13.0	13.2	12.7
55 to 64 years.....	406	■	119	13.6	15.7	10.4
65 years and over.....	912	548	364	30.5	29.7	31.7

This table shows that relatively more females than males died at under 1 year, 1 to 4 years, 5 to 14 years, and 15 to 24 years, or at each

age period under 25 years of age, as well as at 65 years and over, the period of old age.

Occupations.—The table below gives, for deaths 15 years and over, the number of men and women for whom some occupation was reported in contrast with those for whom no gainful occupation was shown:

Deaths, Fifteen Years and Over, Classified by Sex and Occupation, with Per Cents by Sex, for California: November.

	Deaths.			Per cent male.	Per cent female.
	Total.	Male.	Female.		
15 YEARS AND OVER-----	2,491	1,565	926	62.8	37.2
Occupation reported -----	1,461	1,373	88	94.0	6.0
No gainful occupation-----	1,030	192	838	18.6	81.4

Of the 1,461 decedents for whom occupations were reported the males numbered 1,373, or 94.0 per cent, and the females only 88, or 6.0 per cent.

The following table shows the distribution of male decedents 15 years and over, engaged in the main kinds of occupation.

Deaths of Males Fifteen Years and Over Engaged in Gainful Occupations, Classified by Kinds of Occupation, with Per Cents, for California: November.

Kind of occupation.	Males 15 years and over.	
	Deaths.	Per cent.
ALL OCCUPATIONS-----	1,373	100.0
Professional -----	70	5.1
Clerical and official-----	114	8.3
Mercantile and trading-----	101	7.4
Public entertainment -----	32	2.3
Personal service, police and military-----	43	3.1
Laboring and servant-----	282	20.5
Manufacturing and industry-----	301	21.9
Agriculture, transportation and other outdoor pursuits----	418	30.5
All other occupations-----	12	0.9

Of the 1,373 male decedents for whom occupations were reported, 418, or 30.5 per cent, were engaged in agriculture, transportation, and other outdoor pursuits; 301, or 21.9 per cent, in manufacturing and mechanical industry; 282, or 20.5 per cent in laboring and servant work; and altogether 372, or 27.1 per cent in professional, clerical and official, mercantile and trading and all other occupations.

REPORT OF THE BUREAU OF THE HYGIENIC LABORATORY
FOR DECEMBER.

WILBUR A. SAWYER, M. D., Director.

Progress during the Past Year.

The year 1912 has been one of notable progress in the laboratory. It saw the beginning of the manufacture of antirabic virus at the laboratory for use by the State Board of Health in administering the Pasteur treatment. It saw the number of laboratories at which the Pasteur treatment for the prevention of rabies is administered increased to eight. It saw a new branch laboratory established at Sacramento for the special purpose of rendering service more promptly to Northern California. It saw the number of depositories for mailing outfits for sending specimens and cultures to the laboratory increased to 159. It saw several important investigations of outbreaks of disease carried on under the new Division of Epidemiology. It saw the beginning of an investigation into the method of transmission of infantile paralysis, and it saw, in this work, the establishment of a precedent for research through which the State will discover and test its methods of limiting and eradicating epidemic diseases.

Division of Biological Examinations.

Summary of Examinations made in the California State Hygienic Laboratory during the month of December, 1912.

Condition suspected.	Positive.	Negative	Incon- clusive.	Total.
Main Laboratory at Berkeley:				
Anthrax -----		1		1
Diphtheria -----	91	78		169
Gonococcus infection -----	3	7		10
Malaria -----	1	2		3
Rabies -----	35	1	1	37
Tuberculosis -----	3	21		24
Typhoid -----	1	16		17
Water pollution -----	7	6	5	18
Miscellaneous -----	1	6	2	9
				288
Northern Branch at Sacramento:				
Diphtheria -----	18	28		46
Gonococcus -----	1	1		2
Malaria -----		3		3
Tuberculosis -----	3	4		7
Typhoid -----	1	6		7
				65
San Joaquin Valley Branch at Fresno:				
Diphtheria -----		13		13
Tuberculosis -----	1	1		2
				15
Southern Branch at Los Angeles:				
Diphtheria -----	1	10		11
Tuberculosis -----		1		1
Typhoid -----		5		5
				17
Total number of examinations -----				385

Division of Preventive Therapeutics.***Pasteur Treatment for the Prevention of Rabies by the State Hygienic Laboratory during the month of December, 1912.***

	Treatment commenced.	Treatment completed.
Main Laboratory at Berkeley.....	1	3
Northern Branch at Sacramento.....	4	0
San Joaquin Valley Branch at Fresno.....	2	1
Southern Branch at Los Angeles.....	0	0
Laboratory of Sacramento Board of Health, by deputized bacteriologist	0	1
Laboratory of San Francisco Board of Health, by deputized bacteriologist	9	8
Laboratory of Los Angeles Board of Health, by deputized bacteriologist	4	0
Laboratory of Letterman General Hospital, Presidio, by deputized bacteriologist	0	0
	20	13

Public Health Instruction.***Participation in Instruction in Public Health During December, 1912.***

Main Laboratory at Berkeley:	
Bacteriological instruction outfits sent out.....	2
Bacteriological instruction outfits in use.....	22
Lectures or talks by the Director.....	2

Division of Epidemiological Investigations.**Epidemiological Investigations During December, 1912.**

Main Laboratory at Berkeley:	
Special investigations by the Director.....	3
Continuance of the investigation into the methods of spread of poliomyelitis (infantile paralysis).	
Investigation of a case of human rabies in Sacramento.	
Investigation of an epidemic of dysentery at Madison.	

**REPORT OF THE BUREAU OF FOOD AND DRUGS FOR
DECEMBER, 1912.**

M. E. JAFFA, Director.

Division of Laboratory Examinations.

Among the examinations carried on during the past month those of evaporated milk might be especially mentioned. A large number of samples of this food product, both state and interstate, have been collected, examined and analyzed to ascertain whether or not the product as sold in this State fully meets the requirements of Food Inspection Decision No. 131. The standard in part, set forth by that decision, being as follows:

- (1) "Evaporated milk should be prepared by evaporating the fresh, pure, whole milk of healthy cows, obtained by complete milking and excluding all milkings within 15 days before calving and 7 days after calving, provided at the end of this 7-day period the animals are in a perfectly normal condition.

- (2) It should contain such percentages of total solids and of fat that the sum of the two shall be not less than 34.3 and the percentage of fat shall be not less than 7.8 per cent. This allows a small reduction in total solids with increasing richness of the milk in fat.
- (3) It should contain no added butter or butter oil incorporated either with whole milk or skimmed milk or with the evaporated milk at any stage of manufacture."

The investigation was undertaken because it was reported to the Laboratory that the evaporated milk as now sold in this state was not up to standard, or, in other words, that the fat content was below 7.8 and the solids not fat less than 26.5 per cent.

It is very encouraging to note that as far as the examinations have proceeded, the full work not being completed, only one sample examined has been found to fall below the legal requirements. A full report of the work will be published in the next month's issue of the Bulletin.

Analyses of Unofficial Samples.

The list of analyses for the month of December includes meats, meat food products, drugs, nuts, canned goods, ice cream, extracts, vinegars and spices. Considerable time during the past month has been devoted to the examination of unofficial samples, that is, those submitted by State Institutions or departments of Health and so on.

Among the unofficial samples examined were some for the district attorney of Shasta County, the object being to ascertain whether or not the product labeled "Near Beer" was true to name, in that the content of alcohol was about 1 per cent by volume. The analysis of the sample submitted indicated that the alcohol percentage was in accordance with the statements on the label and within the legal requirements and so on.

Notice of Judgments.

Any person wishing copies of any of the following Notices of Judgments may obtain same by addressing the Director of the State Laboratory, University of California, Berkeley, Cal.

- No. 1599—Misbranding of Temperine.
- No. 1600—Adulteration and Misbranding of Highland brand Tomato Catsup; Misbranding of Compound Glucose Apple Jelly; Adulteration of Waldorf brand Tomato Catsup.
- No. 1601—Adulteration and Misbranding of Orange Extract.
- No. 1602—Misbranding of Salad Oil; Adulteration and Misbranding of Vanilla Flavor.
- No. 1603—Adulteration and Misbranding of "Frutena."
- No. 1604—Adulteration of Oysters in shell.
- No. 1605—Adulteration and Misbranding of Lemon Flavor.
- No. 1606—Adulteration and Misbranding of so-called Castor Oil.
- No. 1607, 1619, 1625, 1632, 1669—Adulteration of Tomato Pulp.
- No. 1608—Adulteration and Misbranding of Turpentine.
- No. 1609—Misbranding of Evaporated Milk.
- No. 1610—Alleged Misbranding of Sodarine.
- No. 1611, 1643—Misbranding of Macaroni.
- No. 1612—Misbranding of German Grits.
- No. 1613—Misbranding of Sorghum Syrup.
- No. 1614—Adulteration and Misbranding of Paprika.
- No. 1616—Adulteration of Oysters.
- No. 1617, 1618—Alleged Adulteration and Misbranding of Vinegar.
- No. 1620, 1641, 1664—Misbranding of Maraschino Cherries.
- No. 1621—Misbranding of Fish.

- No. 1622—Adulteration and Misbranding of Apple and Currant Jelly and Apple and Loganberry Jelly.
No. 1623—Misbranding of Vanilla Extract.
No. 1624, 1640—Adulteration and Misbranding of Olive Oil.
No. 1626—Adulteration of Tomato Catsup.
No. 1627, 1652, 1676—Adulteration and Misbranding of Vinegar.
No. 1628—Misbranding of Blackberry Cordial.
No. 1629—Adulteration and Misbranding of So-called Sugar Feed.
No. 1630, 1636—Adulteration of Frozen Eggs.
No. 1631—Adulteration of Paprika.
No. 1633—Adulteration of Tomato Puree.
No. 1634—Adulteration of Candy.
No. 1635—Misbranding of Rice.
No. 1637—Adulteration of Dried Eggs.
No. 1638—Misbranding of Lima Beans.
No. 1639—Misbranding and Alleged Adulteration of Vanilla Extract.
No. 1642—Alleged Adulteration of Candy Eggs, Peaches, and Pears.
No. 1644—Misbranding of Butter.
No. 1645—Misbranding of Candy.
No. 1646—Adulteration of Tomato Conserve.
No. 1647—Adulteration and Misbranding of Coffee.
No. 1648—Adulteration of Potted Fish Paste.
No. 1649—Adulteration and Misbranding of Wine.
No. 1650—Misbranding of Breakfast Food.
No. 1651—Misbranding of Canned Salmon.
No. 1653—Misbranding of So-called Champagne.
No. 1654—Alleged Misbranding of Pasture Dairy Meal; Alleged Adulteration and Misbranding of Red Feather Poultry Scratch Feed; Alleged Misbranding of June Pasture Dairy Meal; Misbranding of Arab Balanced Horse Feed.
No. 1655—Adulteration of Ice Cream Cones.
No. 1656—Misbranding of Cottonseed Hulls.
No. 1657—Adulteration and Misbranding of So-called Cider Vinegar.
No. 1658, 1661, 1662—Adulteration of Milk.
No. 1659, 1660, 1663—Adulteration of Cream.
No. 1665—Adulteration and Misbranding of Sparkling Sauterne and Sparkling Burgundy.
No. 1666—Adulteration of Oil of Thyme.
No. 1667—Adulteration and Misbranding of So-called Blackberry Cordial and Blackberry Juice.
No. 1668—Adulteration of Frozen Egg Product.
No. 1670—Adulteration of Tomato Ketchup.
No. 1671—Adulteration of Cheese.
No. 1672—Misbranding of Gin Cucurbita; Adulteration and Misbranding of Extract of Wintergreen; Misbranding of Creme de Menthe Cherries, Misbranding of Kummel; Misbranding of Eclipse Phosphates, Gin and Celery; Misbranding of Curacao.
No. 1673—Misbranding of Fagret's Hair Tonic.
No. 1674—Adulteration and Misbranding of Alexandrian Senna Leaves, Tinnevelly Senna Leaves, Seneka Root, Coca Leaves, Stramonium Leaves, and Henbane Leaves.
No. 1675—Misbranding of Banana Flavor, Strawberry Flavor, Pineapple Flavor and Vanilla Flavor.
No. 1677—Misbranding of "Walnut Oil."
No. 1678—Misbranding of Kornfalfa Feed.
No. 1679—Adulteration and Misbranding of So-called Maraschino Cherries.
No. 1680—Misbranding of Coffee.

Cases Ordered Referred to the District Attorneys December 7, 1912.

Name of article.	Offense.	Manufacturer or jobber.	Accused dealer.	Locality.
Fresh eggs -----	Mislabeled. Eggs are not fresh-----	S.D.Needham (Guarantor)	-----	Richmond.
Fresh eggs -----	Mislabeled. Eggs are not fresh-----	-----	Ray O'Brien -----	Los Angeles.
Fresh eggs -----	Mislabeled. Eggs are not fresh-----	-----	Truffo Bros. -----	Los Angeles.
Fresh ranch eggs-----	Mislabeled. Eggs are not fresh-----	-----	Maroot & Nazarian-----	Los Angeles.
Cocoa -----	Mislabeled. Sample contains cocoa and foreign material. Adulterated. Foreign material substituted for cocoa.	-----	Puritas Coffee and Tea Co.-----	Los Angeles.
Pork sausage -----	Mislabeled. Sample contains foreign meat product not labeled. Adulterated. Foreign meat product substituted for pork sausage.	-----	Richmond Market, O. R. Ludwig, proprietor.	Richmond.
Pork sausage in bulk----	Mislabeled. Sample contains cereal and foreign meat product. Adulterated. Sample contains sulphur dioxide over 500 mgs. per kilo.	-----	Lily Meat Market, Chas. A. Schwartz, proprietor.	Richmond.
Pork sausage in links----	Mislabeled. Sample contains cereal and foreign meat product. Adulterated. Sample contains sulphur dioxide over 300 mgs. per kilo.	-----	Lily Meat Market, Chas. A. Schwartz, proprietor.	Richmond.
Jamaica ginger -----	Mislabeled. Contents of package less than stated on label. Adulterated. Below standard for Jamaica ginger.	California Syrup and Extract Manufacturing Co. (Guarantors).	-----	Oakland.
Orange extract -----	Mislabeled. Sample is below standard for orange extract. Adulterated. Other materials substituted for orange extract.	California Syrup and Extract Manufacturing Co. (Guarantors).	-----	Oakland.
Fresh ranch eggs-----	Mislabeled. Eggs not fresh-----	-----	O. F. Beckhans-----	Richmond.
Pork sausage -----	Adulterated. Substitution of foreign meat product-----	-----	Saratoga Market -----	San Jose.
Pork sausage -----	Adulterated. Substitution of cereal and foreign meat food product. Mislabeled. Foreign materials not declared.	-----	C. Wendt & Sons-----	San Jose.

REPORT OF THE BUREAU OF PUBLICATIONS AND HEALTH INFORMATION FOR DECEMBER, 1912.

GUY P. JONES, Acting Director.

Public interest in health matters during December centered largely about tuberculosis. This was due in a great measure to the activities of the various public health organizations engaged in effecting the sale of Red Cross seals, the larger part of the proceeds from which will be devoted to active work in the eradication of the disease from California.

The extensive advertising coincident with the sale of the seals, through newspapers, billboards and street car placards, made its influence felt in this Bureau. Many inquiries concerning tuberculosis were received, and large quantities of literature distributed. In addition, material for lectures was furnished, stereopticon slides loaned and information concerning sanatoria supplied.

This Bureau is in constant receipt of requests for literature concerning sex hygiene, not alone from California, but from other states as well. The April, 1910, Bulletin which contained much information upon this subject is entirely out of print, and it is impossible to grant these requests until further appropriations are available. The interest in sex hygiene is so widespread, however, that the Board hopes to be able to furnish such literature at an early date.

There has also been a great demand for information concerning pure milk, such as was supplied in the Bulletin of September, 1910. Unfortunately, the supply of this number was exhausted some time ago but it is hoped that the appropriations to be made by the Legislature will provide for the early distribution of sufficient quantities of this literature.

LIST OF COUNTY HEALTH OFFICERS.

County.	Health officer.	Address.
Alameda	Dr. C. L. McKown	Niles
Alpine*	County Recorder Frank Smith	Markleeville
Amador	Dr. E. E. Endicott	Jackson
Butte	Dr. L. Q. Thompson	Gridley
Calaveras	Dr. Irwin B. March	San Andreas
Colusa	Dr. C. A. Poage	Colusa
Contra Costa	Dr. W. S. George	Antioch
Del Norte	Dr. E. M. Fine	Crescent City
El Dorado	Dr. L. M. Leisenring	Placerville
Fresno	Dr. G. L. Long	Fresno
Glenn	Dr. J. A. Randolph	Willows
Humboldt	Dr. Carl T. Wallace	Eureka
Imperial	Dr. Virgil McCoombs	El Centro
Inyo	Dr. I. J. Woodin	Independence
Kern	Dr. G. M. Bumgarner	Bakersfield
Kings	Dr. Ralph Motherol	Hanford
Lake	Dr. W. E. Upton	Kelseyville
Lassen	Dr. R. W. T. Garner	Susanville
Los Angeles	Dr. E. O. Sawyer	Los Angeles
Madera	Dr. Mary R. Butin	Madera
Marin	Dr. J. H. Kuser	Novato
Mariposa	Dr. F. L. Wright	Mariposa
Mendocino	Dr. J. Liftchild	Ukiah
Merced	Dr. J. H. Mudd	Merced
Modoc	Dr. John Stile	Alturas
Mono*	Dr. R. A. Cushman	Bridgeport
Monterey	Dr. Garth Parker	Salinas
Napa	Dr. E. G. Smart	Napa
Nevada	Dr. Carl P. Jones	Grass Valley
Orange	Dr. John Wehrly	Santa Ana
Placer	Dr. J. S. Wheeler	Roseville
Plumas	Dr. F. D. Walsh	Quincy
Riverside	Dr. George E. Tucker	Riverside
Sacramento	Dr. Hugh Beattie	Elk Grove
San Benito	Dr. J. M. O'Donnell	Hollister
San Bernardino	Dr. Philip M. Savage	San Bernardino
San Diego	Dr. O. G. Wicherski	San Diego
San Francisco	Dr. R. G. Brodrick	San Francisco
San Joaquin	Dr. H. C. Peterson	Stockton
San Luis Obispo	Dr. H. M. Cox	San Luis Obispo
San Mateo	Dr. W. G. Beattie	Colma
Santa Barbara	Dr. J. C. Bainbridge	Santa Barbara
Santa Clara	Dr. William Simpson	San Jose
Santa Cruz	Dr. W. H. Keck	Santa Cruz
Shasta	Dr. F. Stabel	Redding
Sierra	Dr. R. B. Davy	Downieville
Siskiyou	Dr. F. J. McNulty	Yreka
Solano	Dr. S. G. Bransford	Suisun
Sonoma	Dr. P. A. Meneray	Santa Rosa
Stanislaus	Dr. F. R. De Lappe	Modesto
Sutter	Dr. E. V. Jacobs	Meridian
Tehama	Dr. W. F. Maggard	Corning
Trinity	Dr. D. B. Fields	Weaverville
Tulare	Dr. W. A. Preston	Visalia
Tuolumne	Dr. Wm. Lyman Hood	Sonora
Ventura	Dr. A. A. Maulhardt	Oxnard
Yolo	Dr. W. J. Blevins	Woodland
Yuba	Dr. J. H. Barr	Marysville

LIST OF CITY HEALTH OFFICERS.

City.	Health officer.	City.	Health officer.
Alameda	Dr. A. Hieronymus	Burlingame	
Albany	Dr. Robt. Hector	Callistoga	Dr. Henry Abrons
Alhambra	Dr. F. E. Corey	Calexico	Dr. Wm. F. Smith
Alturas	Dr. John Stile	Chico	G. H. Taylor
Alviso		Chino	Dr. John W. Callnon
Anaheim	Dr. J. L. Beebe	Claremont	
Antioch	Dr. W. S. George	Cloverdale	Dr. Cory C. Ledyard
Arcadia		Coalinga	Dr. H. S. Warren
Arcata	Dr. G. W. McKinnon	Colfax	
Arroyo Grande		Colton	Dr. L. A. J. La Motte
Auburn	A. S. Waldo	Colusa	Dr. C. A. Poage
Azusa	Dr. John E. Hill	Compton	J. W. Stone
Bakersfield	H. Farris	Concord	Dr. F. F. Neff
Belvedere	Dr. Florence Scott	Coram	Geo. H. Thomas
Benicia	Dr. W. L. McFarland	Corning	Dr. O. F. Rudolph
Berkeley	Dr. J. J. Benton	Corona	Dr. W. S. Davis
Biggs	Dr. O. C. Hawkins	Coronado	Dr. Raffaele Lornal
Bishop	Dr. J. W. Shute	Cottonwood	Dr. A. B. Gilliland
Blue Lake	Dr. G. N. Wood	Covina	
Brawley	Dr. L. L. Lindsey	Crescent City	
Burbank		Daly City	

LIST OF CITY HEALTH OFFICERS—Continued.

City.	Health officer.	City.	Health officer.
Davis.....	Dr. W. E. Bates	Palo Alto.....	Hubert O. Jenkins
Delano.....	Dr. H. Hildreth	Pasadena.....	Dr. Stanley P. Black
Dinuba.....	Dr. Wm. Whittington	Paso Robles.....	H. M. Bayne
Dorris.....	Dr. A. A. Atkinson	Perris.....	A. F. Hardy
Dixon.....	W. C. Rhem	Petaluma.....	Dr. J. M. Proctor
Dunsmuir.....	Dr. W. B. Mason	Pinole.....	J. Chattleton
Eagle Rock.....	Dr. C. H. Phinney	Pittsburg.....	Dr. F. S. Gregory
Elsinore.....	Dr. George D. Keeler	Placerville.....	P. J. Hall
Emeryville.....	Dr. A. T. Drennan	Pleasanton.....	Dr. S. J. Wells
Escondido.....	Dr. David Crise	Pomona.....	Dr. T. J. Wilson
Etna Mills.....	Dr. W. H. Haines	Porterville.....	Dr. O. C. Higgins
Eureka.....	Dr. L. A. Wing	Placerville.....	Geo. T. Burtchael
Exeter.....	Dr. A. D. McLean	Point Arena.....	
Fairfield.....	Dr. S. G. Bransford	Potter Valley.....	
Fernale.....	Dr. C. A. Phelan	Randburg.....	E. B. McGinnes
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Fort Jones.....	Thos. Branson	Redding.....	L. D. Poole
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Fowler.....	Dr. W. T. Crawford	Redwood City.....	Dr. D. R. Hancock
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Fullerton.....	Dr. F. J. Gobar	Rio Vista.....	Dr. Chas. R. Buke
Gilroy.....	Dr. John A. Clark	Riverdale.....	Dr. A. J. McKinnon
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Gridley.....	Dr. L. L. Thompson	Roseville.....	Mabel B. Scott
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Hollywood.....	E. O. Palmer	Sanger.....	
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Huntington Park.....	Dr. W. Thompson	San Jacinto.....	Thos. Lloyd
Imperial.....	Dr. C. E. Standlee	San Juan.....	W. R. Moore
Inglewood.....	Dr. H. A. Putnam	San Luis Obispo.....	W. F. Cook
Jackson.....	George Hambrie	San Mateo.....	Dr. W. F. Jones
Kann. H.....	Dr. J. P. Sandholdt	San Mateo.....	Dr. S. G. Goodspeed
Kernville.....		San Leandro.....	P. C. Du Bois
King City.....		Santa Ana.....	Dr. J. J. Clark
Kingsburg.....		Santa Barbara.....	Dr. D. A. Conrad
Lakeport.....	Jabez Banks	Santa Cruz.....	Dr. H. E. Piper
Larkspur.....		Santa Clara.....	Dr. J. F. Battie
Lincoln.....	F. R. Elder	Santa Monica.....	Dr. W. H. Parker
Lindkey.....	Dr. W. W. Tourtillot	Santa Paula.....	Dr. B. E. Murrill
Livermore.....	Dr. H. G. McGill	Santa Rosa.....	Dr. Jackson Temple
Lodi.....	Dr. F. W. Colman	Santa Maria.....	Dr. O. P. Paulding
Long Beach.....	Dr. W. H. Newman	Sausalito.....	Dr. A. H. Mave
Lompoc.....		Sawtelle.....	Dr. A. B. Bromanka
Lordsburg.....	Dr. J. E. Hubble	Selma.....	Dr. F. H. Williams
Los Angeles.....	Dr. L. M. Powers	Sierra Madre.....	Dr. R. H. Mockeras
Los Banos.....	Dr. J. L. McClelland	S Sebastopol.....	Dr. J. J. Keating
Los Gatos.....	Dr. C. K. Small	Sisson.....	
Loyalton.....	Dr. G. L. Coates	South Pasadena.....	Dr. C. A. Whiting
Madron.....		South San Francisco.....	Dr. W. P. Acheson
Martinez.....	Dr. H. N. Taylor	Stockton.....	Dr. R. T. McGurk
Martinez.....	Dr. F. E. Brown	Susville.....	Dr. E. S. Drucks
Marysville.....	Wm. Meek	Sutman.....	
Mayfield.....	Dr. F. M. Selbert	Stanton.....	
McCloud.....	Dr. R. T. Legge	Sonoma.....	
McKittrick.....	G. M. Chitwood	Taft.....	E. G. Wood
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THE CALIFORNIA STATE BOARD OF HEALTH
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MENTO.

CALIFORNIA STATE BOARD OF HEALTH

MONTHLY BULLETIN

Vol. 8

FEBRUARY, 1913

No. 8

MILK AND MEAT

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2. Bureau of Vital Statistics.

GEORGE D. LESLIE, PH.B., Director and Statistician.

Divisions: Reports; Official Records; Statistics.

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WILBUR A. SAWYER, M.D., Director.

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STANLEY P. BLACK, M.D.

Division Bacteriologist and Field Officer.....Auditorium Building, Los Angeles

REGULAR MEETINGS.

The meetings of the California State Board of Health are held regularly the first Saturday of each month, but the quarterly meetings required by law to be held at the Capitol of the State are ordinarily designated as January, April, July, and October.

By courtesy of the University of California the Food and Drug Laboratory and the Hygienic Laboratory are located in University buildings at Berkeley, California.

Address all communications to the

SECRETARY, Sacramento, Cal.

FEBRUARY BULLETIN.

COMMENTS.

The 1913 Legislature Convenes.

Again the State of California is preparing to consider new laws, amend old ones, and repeal those found to be useless. Already it has become evident that health legislation will occupy a prominent place in the calendar. Bills will be introduced regulating the food we eat, the houses we live in, the clothes we wear, the number of hours we work, the medicines we take, the doctors we choose and the nurses we employ, the towels we use, the cups we drink from, the length of the sheets we sleep under, where we shall not expectorate, what dogs may bite us and when—these are some of the things it is proposed to do to us. Then it is proposed to say what kind of air we shall breathe, what kind of water we shall drink, how we shall dispose of our sewage, what standard of cleanliness our dairymen shall maintain, what sanitary facilities shall be provided for our school children, what kinds of nuisances we may not maintain, and where we may not bury our dead animals. It is even proposed to say we shall not do certain things at all—things which it is believed will lower the standard of morals or may aid in the spread of disease, or in some other way interfere with social and economic progress.

Some say all this type of legislation is an encroachment on personal liberty and should be ignored by the legislators; others say the State is vitally interested in everything that pertains to the prevention of disease and the maintenance of the good health of all its citizens. As usual, when people honestly differ, the truth probably lies somewhere between. Undoubtedly we need more health control, but the Legislature must draw the dividing line between constructive and oppressive health measures.

The great majority of people live in rented houses, buy their food supplies from nearby stores or street wagons, place their children in the keeping of the public school for six hours a day, adapt themselves to the crowded conditions of stores, street cars, theaters, etc., and by innumerable other ways expose themselves to a maximum number of chances of contracting diseases that are communicable. It, therefore, becomes necessary for the State to devise methods of safeguarding this portion of its citizens from exposure to those dangers which the individual cannot foresee or avoid through any action of his own. In the past, the State has very largely failed in this duty toward its citizens.

Health the Chief Property of Average Citizen.

The principle of protection of property by the State is well defined. No citizen feels any sense of dependence or shame when he demands that his house be protected from fire at public expense, or that he be safeguarded from robbery by police paid from public funds. This principle is now being extended to cover his health and those things which directly contribute to it. Economic conditions are forcing us to realize that health (which is another term for physical fitness

for work) is the chief property of the average citizen, and that he has the right to demand public protection for it. Once this principle is recognized, the new possibilities for legislative control present themselves in great variety. Unfortunately, the citizen who advocates this view of health as a tangible property to be protected at public expense and by mandatory requirements for the sanitation and regulation of various enterprises does not always simultaneously realize that he has many responsibilities in return for this protection.

Public protection against fire is provided at small individual expense, but the citizen finds that in obtaining this protection he has been obliged to accept a limitation of his personal liberty. He can no longer string electric wires about his garret to suit himself; he must follow an ordinance and pay for an inspection to see that the work has been so performed as to eliminate the risk of fire. He finds that he can no longer heat his house as he chooses, but must comply with another ordinance. He cannot build a rubbish fire when and where he wishes; there are regulations on the subject. Inevitably the same principle holds in developing health protection at public expense.

The Legislature's task is to determine how far and in what directions the protection of health (defined as property) is desirable and how far restriction of individual liberty is justifiable in attaining the desired result.

**The Citizen Who
Wants to Conserve
His Health.**

Every facility should be afforded the citizen who wants to protect himself against disease. He should be encouraged to do those things which he may do for himself, and those things which he cannot do should be arranged for through the administrative departments of State and local government.

Obviously the sanitary control of water supplies, of milk and meat supplies, and of other food supplies is a state and county problem. It is not practical for each person to have his own water supply even at home, and when he travels he is entirely dependent on the care with which others safeguard water purity. Since water supplies are largely concerned with more than one county government, they should be controlled by the State. Likewise, milk and meat supplies are largely concerned with intercounty commerce and should be under state supervision. Foods and drugs are already under state supervision for the same reason. But there is this difference between water and milk: Everyone must use water, whereas milk, except for young children, is not an absolute necessity. Meat and other foods are classed with milk in this regard. In framing laws, therefore, it is justifiable to make a distinction between water and food supplies. The State should not permit any polluted public water supplies to be used, but it may, perhaps, limit its responsibility for milk and other foods to requiring complete and accurate labels on all products offered for sale, except those positively dangerous to health, which should be prohibited. The analysis of each measure proposed will show whether it should be enforced by state or local ordinances.

Since the greater part of the health conservation problem must be worked out through the observance of hygienic principles by the citizens themselves, it follows that popular education in hygiene and

sanitation should be seriously taken up by the State and every effort made to place the choice between healthful and unhealthful living conditions clearly before them. Experience with the food and drug laws has demonstrated that the people respond promptly and carry such legislation into effect. All such legislation, however, must include provision for a strong central department to keep it properly before the public. Every citizen wants to conserve his health if the way is explained to him and made simple.

Simplifying Administrative Machinery.

When two people sit down with pencil and paper to outline a plan of organization for the administration of state business, they generally agree upon the necessity for a governor; thereafter they disagree. One says, "the governor should not be given too much power," the other says "give the governor power to control his administration, then hold him rigidly accountable to the people for results." In all commercial enterprises there exists some permanency of policy and security of tenure in position for those who make a study of the business. Only in public business do we find sudden and violent reversals of policy and methods of administration. And only in public business do we find in responsible positions appointees who have never had any previous training in their several lines of work.

The difference of opinion referred to, generally arises from two diametrically opposed viewpoints. The first view holds that independent commissions composed of citizens of high standing interested in the public welfare, serving without pay, and not disturbed by responsibility for more than one phase of state government, will obtain the maximum results. The second view holds that such commissioners are unstable, that they are not coördinated with other allied activities of the state government, that they tend toward duplication of work and confusion of administrative details. The advocates of this second view believe that the grouping of all state administrative functions under five or six heads would get the best results.

There is evidence of a general alignment of the legislative members themselves upon this question. So far as the subject of public health is concerned, bills have been introduced in accordance with both policies. Many new lines of work are proposed for the State Board of Health, and some of its present duties are proposed for transfer to other state departments. The policy of the State Board of Health is to serve as a bureau of accurate information on all health measures, and to furnish such information as it can collect to both proponents and opponents of each measure. There are some measures, however, which necessarily involve the Board in taking a more active part. For example, a difference of opinion exists as to whether an independent commission on tuberculosis should be created or whether a bureau of tuberculosis under the supervision of the State Board of Health should be established. A number of bills of similar administrative significance have been prepared by various organizations. When grouped and analyzed with reference to administration, they represent the proposition outlined above. Shall we have one large state department of health responsible to the people for all matters relating to health conservation? Or, shall we have a number of independent commissions, each responsible for a special phase of health conservation?

This question in regard to health is also being raised in other branches of state administration. It is desirable that the matter be thoroughly considered and some permanent state policy be adopted. If concentration of the many boards and commissions at present carrying on the state's business is desirable, there should be an effort to group them into five or six departments. The question then arises: Do the people consider health conservation of enough importance to make it one of these major departments? If not, with what other activities should it be combined? These are a few of the basic questions which health officers particularly should consider carefully and be prepared to express an opinion upon when consulted by their representatives in this legislature.

NOTE.—The September, 1910, Bulletin of the State Board of Health was devoted to milk and meat. So many requests for this number were received that it was soon exhausted. These requests have been renewed since the present legislature has convened. The following condensed articles from the September Bulletin have therefore been included in this issue.

CALIFORNIA DAIRIES—THE GENERAL PROBLEM.

By WILLIAM F. SNOW.

California probably has in round numbers two million people who use milk in some form in their daily food. This forms a great market and the competition for it is keen. The milks which are presented in this market, whether fresh, canned, or powdered, are all put out in attractive containers, and all claim origin in the udder of the gentle domestic cow. The advertisements of these milks lend credence to the proverbial vision of softly lowing kine, yellow cream, dimpled dairymaids, and triple-plated tin pans; but it is not good business to waste time and money in producing milk under such conditions for an indifferent consumer, hence on investigation the vision generally fades into the sordid picture of the average California dairy of to-day. The gentle well-groomed cow glowing with health is found replaced by the business-cow which is considered to be simply a piece of apparatus useful in the production of so much milk at so much per gallon. The amount she is given to eat is gauged not by the amount she needs, but by the quantity of milk she will produce on a minimum diet. It is cheaper to buy new cows than to repair old ones when their health has worn out. The dimpled dairymaid is an English extravagance not attempted in California. The business of her grimy-handed successor is to milk his string of thirty cows twice a day and get back to his other "chores" as soon as possible. As to the yellow cream of the Arcadian vision, the producer has little to do with that. It is his business to see that his combined product meets the minimum requirement of law for butter fats—to go beyond this and stimulate fanciful visions of rich cream is wasteful.

From the business-cow to the indifferent consumer there are many and devious routes. They are constructed upon but one common principle, *i. e.*, large profits to the milk dealer and low price to the consumer. These conditions will continue so long as people fail to investigate their own milk supplies themselves, and refuse to provide their health officers with trained inspectors to do it for them.

The tenderfoot milk reformer sitting at his desk with laboratory reports and tables of infant mortality before his eyes, writes out a list of requirements for sanitary milk supplies. He wants healthy, well-fed cows, stabled and milked under sanitary conditions, the milk to be immediately cooled and conveyed to the consumer without exposure to dust or heat en route. Nothing could be more simple or more reasonable—on paper! No milk reformer of note has failed to pass through this stage. It is the inevitable enthusiasm of youth, and has been the means of bringing these same inexperienced but determined reformers face to face with the almost insurmountable commercial difficulties which confront the actual producer of the milk. In order to bring the facts of the laboratory to bear on the frightful infant mortality from "bad" milk these pioneer reformers have realized that education and patient persistence are the tools they must use. Health departments, police courts, state laws, and city ordinances are necessary details, but the essential foundation upon which milk improvement associations must build is instruction of the dairyman in the methods of producing clean milk and instruction of the consumer as to the characteristics and importance of pure, clean milk.

The dairyman points out the difficulties of the milk business in some such way as this: The milk commissions stir up the people with facts and figures to show the dangers of unclean milk, and city trustees are urged to pass ordinances, compliance with which means the expenditure of thousands of dollars on each dairy without prospect of increased revenue from the sale of milk. The public demands a low uniform price for milk throughout the year, but cheerfully pays a fluctuating price for butter, which is based upon the same varying costs of manufacture. Tuberculin-tested cattle are demanded when it is generally conceded that if he kills his tuberculous cattle he can not buy tested cattle to replace them. Trained dependable milkers are demanded, without regard to the scarcity of such men at any salary. Transportation of the milk in iced bottles direct from the producer to the consumer is demanded when it can be demonstrated that neither the railroad companies nor the middlemen will co-operate with the producer in accomplishing this. Lastly the dairyman complains that if he attempts to meet all these demands, his experience will be that of many others who have found that the public will not protect them from the cut-rate methods of competitors, who save expense by producing filthy milk.

The milk commissions have realized the justice of these charges, and are attempting to meet them.

The medical milk commissions are demonstrating that ambitious dairymen can produce safe, rich, clean milk if they determine to do so and have the steady patronage of an appreciative public: the civic milk improvement associations are demonstrating that dairies in general can maintain a much higher standard of cleanliness without increased cost: the educational committees of these associations, and other agencies, are demonstrating to the people that milk is a food, not merely a beverage, and that its value should be estimated not on its bulk and white color, but on the food materials it contains and the cleanliness with which it is handled: the State Dairy Bureau is improving the general standards of quality and sanitary environment of milk: and the State Board of Health is tracing out and eliminating unsanitary milk supplies brought

under its jurisdiction by the appearance of communicable diseases on dairy premises. The resultant of all these influences is a steadily improving milk supply throughout the State.

The special articles on milk which are being written for this Bulletin will give a survey of the lines along which this progress should proceed with accelerating speed. The administrative side of the question, however, is of importance. All students of the milk problem agree that milk inspection must include both laboratory and field supervision, if good results are to be obtained. Some cities receive milk from as many as twelve or more counties. These cities and the counties into which their field inspectors go have many differing regulations, and the dairy-men are often greatly confused by this. The need for standardizing inspection methods and regulations should be apparent. There should be a county milk inspector under the direction of the County Health Officer whose duty would be to enforce standard county ordinances for milk production. The State Bureau of Dairy Products should have the authority to control all intercounty traffic in milk just as the Federal Government controls interstate traffic in other foods.

One of the recent innovations in the milk business is the use of the single service package for milk. Many failures have marked the progress of this movement but milk cartons have now been devised which have withstood every practical objection from commerce and hygiene. There remains only the trial of such a package in competition with the individual-delivery bottle. If this is successful every effort should be made to encourage its widespread adoption. There is just as much reason (far more in fact) for buying a sealed, guaranteed package of milk direct from the farm of a well-known dealer of reputation for his fine dairies, as for buying a sealed package of baked beans, or shredded wheat biscuits on the same guarantee.

But from the point of view of the health officer there is a very special reason for advocating guaranteed, sealed cartons of milk, dated with the hour of milking and shipped unbroken from the dairy to the consumer or the city retail agency. The general insistence of the public on pure milk direct from the cow to the consumer in original sealed packages delivered on ice would tremendously reduce the illness and mortality among children, and would greatly increase the number of adult milk users who under present conditions deny themselves this valuable food. As a public health measure it would enable the health officer to immediately trace disease outbreaks due to milk and to warn all users of the dangerous supply without interfering with the general milk business of any section of the State. By cloaking the source of infections the middleman's mixing of milk from a large number of dairies undoubtedly favors the spread of disease.

In general, every measure which encourages direct transmission of milk from cow to customer should be encouraged. The old battle of original purity observed versus safety by filtration, as waged among water reformers, applies with far greater significance to milk supplies. Pasteurization may do all that is claimed for the process, and should be utilized wherever possible as a temporary measure in the advance toward better methods, but the fight for pure milk so handled that it will not need pasteurization or treatment by any one of several other *methods that have recently been reported with good results, should never be abandoned.*

THE CONTROL AND IMPROVEMENT OF THE MILK SUPPLY OF A LARGE CITY.

By ADELAIDE BROWN, M.D., San Francisco.

To secure clean milk very simple requirements must be met: healthy cows; clean dairying; rapid transportation of a chilled product; honest handling by the middleman, *i. e.*, the city agency which receives and distributes the product; the sanitary handling of milk and milk utensils by the housekeeper.

Our municipality (San Francisco) through its board of supervisors has passed laws to control the handling of milk in its borders; preservatives have been done away with; the fat content is regulated by law; and one of the duties of the chemist of the Board of Health is to appear in court against the milk distributor in whose possession milk below the standard in fat is found. As yet the bacterial content is not made a matter of legal prosecution, but it is studied in every milk sample, taken in sterile bottles and kept on ice until cultured. A count over 500,000 per cubic centimeter (certified milk allows 10,000 and averages 5,000) calls for a letter from the Board of Health ordering the producer to handle the milk more cleanly. Some municipalities have improved matters (Wheeling, W. Va.) by publishing the counts of all milk samples in the daily press. An immediate scurrying took place to come within the fold of "clean milk."

Our municipality has assumed another duty in inspecting not only the handling of milk in the city, but in passing regulation by which no dairy can be licensed to sell milk in San Francisco which does not produce it on premises and in a manner meeting certain definite requirements of sanitation. This regulation was passed under the last Board of Health through the influence of the Milk Improvement Association, who raised the money to pay for proper inspection of dairies producing milk outside of the limits of San Francisco County, and appointed a trained veterinarian to do this work. Admirable progress was made in this inspection in that the principle of educating the producer to appreciate sanitary dairies, clean water supply, and proper handling of milk went on steadily.

Many dairies were not licensed until five visits had been made by the inspector at short intervals, thus educating the dairyman to fully understand that the requirements specified at first must be carried out before a license could be issued. This line of work has continued under the present Board of Health and as a result a practically uniform count of 50,000 to 100,000 bacteria has ensued.

The handling of milk with other articles of freight and the proper handling of return cans comes under the head of transportation; and as yet, the value of the milk train which secures rapid and proper transportation of milk, and is supplied by the railroads themselves, is not appreciated by *our* large transportation companies. Therefore, our milk is mixed with chicken coops and the tops of cans are used as paths by men in passing back and forth through the car. Proper transportation is under consideration and through the education of the public it will, no doubt, in time be secured.

The health of the individual cow producing the commercial milk is as yet in *no way regulated* by more than gross tests. The tuberculin test

The duty of the householder to the milk delivered at her door is also a matter for education by physicians. Turning the milk into a container which exposes a large surface to dust and dirt while the cream is rising is bad sanitation. The same cream can be secured in a cleanly way by the use of the Chapin milk dipper, and this should be in the kitchen of every house. The habit of returning milk bottles unwashed, thus increasing their bacteriological content should be remedied. Using milk bottles for anything but milk should be controlled by education. The danger of milk as a carrier of disease needs only being explained to be understood by the laity. Milk bottles should never be taken to a room in which there is a contagious disease for although their mechanical cleaning is thorough at the dairy, they can not be exposed to steam sterilization long enough to be absolutely secure. A campaign of popular education in hygiene and sanitation improves the health of the community exactly so far as the teachers are enthusiastic and intelligent in regard to the possibilities of the situation. A milk supply will be good or poor in any city, according to the intelligent demands of the physicians and the laity of that city.

PASTEURIZED MILK.

By ALFRED BAKER SPALDING, M.D., San Francisco.

The tendency towards concentration of population in cities and the diffusion of knowledge in regard to sanitary science has created manifest troubles for all those engaged in the business of supplying food to the general public. It is hard enough when the average citizen demands merely that the price of his food shall not be high, but when he indignantly refuses to eat diseased meat and decayed vegetables, or permit even an honest adulteration or commercial medication of what comes to his table a point is reached when the hustling, rushing producer is driven almost to distraction. And of all the worried purveyors, the milkman is worried the most.

The milk supply of a city can be likened to a continuous, onrushing torrent, which, starting from many sources, some clean, some not so clean, some dirty, and some filthy, mixes together and acquires such a foulness that it passes with difficulty even the feeble protests of an inefficient force of city inspectors and pours itself down the mouths and throats of thousands of ignorant and intelligent, complaisant and besputtering, sick and well consumers.

From the fact that milk is opalescent, in place of being clear like water it is possible for a great deal of filth to pass unnoticed by the casual observer. One does not realize that the sediment in the bottom of a glass or a bottle of milk is merely an indicator of the larger amount of cow feces that the milk contains. It has been conclusively proven by experiments conducted by the Bureau of Animal Industry that tubercular cattle are constantly passing large numbers of tubercular germs in their fecal discharges. And bovine tuberculosis is so common (some large herds running as high as 60 per cent) that tubercular germs can be found in a large percentage of ordinary market milk. Hess recently found tubercle bacilli seventeen times in 107 samples of milk, retailed from forty quart cans in New York City. As the technique for finding

the tubercle germ free in milk is difficult, this percentage must be taken as merely a fraction of what probably exists.

The tubercular germ is mentioned simply to illustrate one well known disease producer carried in ordinary milk. The germs of typhoid fever, and of diphtheria, as well as others that can produce possibly just as dangerous diseases, are also occasionally discovered, while the so-called harmless germs, which cause souring, etc., are present in countless millions.

The milk distributor in the larger cities has, through the efforts of physicians, veterinarians, sanitarians, etc., been educated to know the conditions as they exist, and has, from the demands of his customers, endeavored to improve the conditions as well as he may and still keep down the price of his product to the level of that of his competitors. Of course he *should* sell only pure milk. He *should* buy from clean dairies, and he *should* prevent the enormous germ growth by keeping his milk cold. He would much rather sell clean milk than dirty, and he is so sorry that manure is mixed with his product that he will do all in reason to get it out. But it costs money to keep it out and as a matter of fact the public won't pay. There is always a premium paid for dirty milk. In New York a charitable society provided the poor of a certain neighborhood with certified milk for their babies at six cents a quart, paying the dairyman the regular increased price for his product. This was done in order to reduce the enormous death rate in infants from summer diarrhœa, caused by dirty grocery milk. All went well until the corner grocery reduced the price of milk to five cents and then the certified went begging.

One practical method that many milk distributors are carrying out is pasteurizing, or heating the milk. Heat, of course, will kill all kinds of germs,—good, bad and indifferent. But if milk is heated too much the taste is affected. After much experimenting it has been found that all the germs in the milk can be killed, and the quality uninjured, by heating it to 160 degrees for thirty minutes. The beneficent lactic acid germ is killed, as well as the injurious germ. Of course this does not alter the fact that manure is still in the milk; the manure is simply cooked. Moreover, unless this milk is later most carefully protected and kept chilled, it will soon become a more dangerous food than it was prior to the pasteurization, because new germs, constantly introduced through the usual practice of distribution, will grow rapidly in the pasteurized milk. If kept warm the pasteurized milk will rot and smell similarly to tainted meat, but will not sour because the lactic acid germs have been killed. Again in addition to the germs, there are spores, or eggs, in fresh milk which are not killed unless the process of heating is prolonged. These spores will rapidly reproduce millions of their kind as soon as the milk reaches the suitable temperature for their growth. As a matter of fact the commercial pasteurization of milk consists in heating the milk quickly to 160 degrees and then rapidly cooling. This instantaneous heating while economical, is not sufficient. While it kills ordinary germs and prevents souring, it can not kill the more virulent ones, and especially their spores. It actually aids the sale of dirty milk, for much filthy milk, on the verge of souring, can be pasteurized and passed on to the ignorant consumer, whereas if no pasteurization *has taken place* the consumer would recognize the trouble himself by *the rapid souring*.

Pasteurized milk should be the cheapest milk in the market. It should be pasteurized under the supervision of efficient sanitary inspectors and should be labeled plainly with the date and the degree of pasteurization. It should be kept cold after pasteurization, consumed quickly, and a second pasteurization should never be permitted. If there were on the market certified milk, which is as pure as milk can be produced, and inspected milk, which is from nontubercular cattle, and also is practically a pure, clean product, then pasteurized milk would come to be known as the cheapest product of the milk trade, cooked up so as to be safe. Practically that is exactly what pasteurized milk is, and its chief virtue lies in the fact that it meets the demands of the average consumer because it is cheap.

CERTIFIED MILK AND ITS RELATION TO PUBLIC HEALTH.

By LEWIS SAYRE MACE, M.D., San Francisco; Chairman Executive Committee
California Association of Medical Milk Commissions.

In Newark, N. J., in 1892, began one of the most notable movements for the improvement of public health conditions that the century had seen. The physicians of this city, in common with those of other large communities, found themselves confronted by a problem in the milk supply which seemed well nigh insurmountable.

IMPURE MILK AND ITS DANGERS.

In the distribution of a large amount of milk daily to the centers of population it was but natural that cheapness of the product should determine the success or failure of the producer, provided, of course, that the cheap product could be sold as readily and at as high a price as the clean and consequently more costly article; this was the case with milk. It is an opaque liquid, and almost an unlimited amount of contamination is concealed from view. It is consumed soon after delivery, and so, provided it does not turn sour within a few hours, no complaint will be made. The milk from an infected or diseased cow will, generally speaking, taste as well, and what is more important, sell as well as that from a healthy herd. The result most naturally was that, with few exceptions, the dairies at that time supplying large cities were in an unspeakable condition of filth and wretchedness. The impure product of dirty and infected cows, the sole food of hundreds of thousands of children, caused a death rate so large that all sanitarians and all thinking people were concerned.

THE DEVELOPMENT OF AN IDEA.

An idea occurred to Dr. Henry L. Coit, of Newark, N. J., which was destined to play a tremendous part in the awakening of the public conscience and in the ultimate solution of the pure milk problem. A medical milk commission was formed with Dr. Coit at the head, which proceeded to find a dairyman with a well equipped plant and intelligence and ambition enough to desire to be at the head of his business. He agreed to maintain a healthy tuberculin tested herd in sanitary surroundings and to have them milked and handled with all possible precautions against contamination. Experts employed by the commission

and the commissioners themselves were to inspect the dairy at frequent intervals and offer suggestions as to improvement of the technique. The commission, on the other hand, agreed to allow him to seal his milk bottles with their official seal and to market his product at an advanced price under the name of "certified milk."

A CAMPAIGN OF EDUCATION

The milk commission then began a campaign of education which in the past eighteen years has been the means of placing a supply of pure milk in hundreds of cities, and, what is of far greater importance, of arousing a public demand for a purer product and the enforcement of laws for the betterment of the general milk supply.



The essential apparatus for transferring milk from the cow to the consumer, as used by a certified dairy in Central California. Note the gauze-protected milking bucket, the tall, covered carrying bucket used in transferring the milk from the cow to the bottling room. The bottles are immediately filled, sealed, and placed in an ice water bath till packed in the boxes for shipment.

CERTIFIED MILK DETAILS

The layman has little idea of the countless details which have to be observed before the capped and sealed bottles can be placed upon the market. The cows of the certified herd are especially selected for their health and freedom from tubercular infection. They are regularly examined by the official veterinarian and twice yearly tested with tuberculin. Every cow bears a numbered ear tag and her record and picture is on file with the secretary of the milk commission. Every detail of their surroundings and daily life is carefully supervised. They are

groomed and washed like racehorses, and the visitor to the milking barn searches in vain for olfactory evidence that a couple of hundred cows are milked there twice daily.

The cleanly milkers in their white duck suits carrying the milk to be bottled and the bottling rooms that look like laboratories or surgically clean operating rooms makes an impression upon one which is not easily forgotten.

Certified milk is more than a pure milk supply to be used in emergency for sick children. It is an example of the most perfect product that science and skill can produce, and a notice to all the world that this most important food product can be produced in a clean and



A "fresh air" milking shed in a Southern California certified dairy. Note the grass to prevent dust, the curtains to prevent wind and rain. The construction is very simple and practicable.

wholesome manner, and that ignorance and commercial greed alone are responsible for the existence of impure milk in our markets to-day.

UNCLEAN MILK A MENACE.

Already the production and demand for certified milk is large enough to prove that when the consumer realizes that he is better off and safer with clean than with unclean milk, he is willing to pay a fair price to get it. And this is the real function of the medical milk commission—to teach the public the lesson which they are so slow to learn, that unclean milk from infected sources is a menace to public health. It is a difficult lesson because the science of milk production is so little understood, and milk, as long as it is reasonably rich in fat, does not by appearance and taste condemn itself as other food products do.

A CRITICISM.

Medical milk commissions have been criticised, I know, for confining their activities to the certification of certain dairies instead of using their time and expert knowledge for the improvement of the general milk supply. A moment's thought will show that in doing this they are rendering the greatest possible service to the public, for it is not in a day or a year or a generation that the people as a whole can be educated to demand a pure milk supply, and if it were not for the example of the certified farms constantly before us, we would not only be without a pure supply in time of pressing need, but the public mind, misled by the prejudicial statements of the commercial dealer, would soon lose sight of the real issues involved, and we should soon be back again to where we were a decade ago.

PUBLIC REALIZATION.

It is, of course, shortsightedness which makes the commercial dealer depreciate the value of certified milk. A large portion of the public already realizes that milk is the most important and most generally used article of food, and that its purity is of untold importance.

They already know that the dairy cattle of this State are, to an alarming extent, infected with tuberculosis, and they will not long put up with the character of the product now offered them; neither will they long be put off with the commercial makeshift of pasteurization, even if it should be advocated by the department of agriculture itself. When once they decide to use only milk free from tuberculosis they will not be appeased by the statement that the milk has been warmed and the germs, perhaps, killed.

EXTINCTION OF TUBERCULAR CATTLE.

When that time comes the owner of a certified herd will be far ahead of all his competitors, for we are certain, ultimately, to demand the extinction of tuberculosis among our dairy cattle. It cannot be done in a short time, for things have been allowed to drift too long; but by the State control of importation of cattle, and of dairy conditions the end will be at last attained. And when it is, the credit will be largely due to the efficient and faithful work of the medical milk commissions, which have labored so unceasingly since the first commission was appointed in Essex County, New Jersey, eighteen years ago.

WORK OF THE STATE DAIRY BUREAU.

By F. W. ANDREASEN, Secretary.

The aim and some of the duties of this Bureau are to work for improvements in the sanitary conditions of dairies and factories of dairy products, and to enforce the laws prohibiting adulteration of milk, cheese and butter, and the use of chemical preservatives in dairy products. In this article I will only touch on the duties referred to above, and our efforts to perform these duties.

The greater part of the appropriation has been expended to better the sanitary conditions of dairies producing butter, or furnishing milk and cream to cheese factories and creameries, and also to improve the sanitary conditions of said factories and creameries. The work is pro-

gressing slowly because we have not enough inspectors, four being all that are regularly employed. If, at times during the year, we have more, the force must be reduced below that number at other times, to make ends meet. There are now about ten thousand dairies in this State supplying milk or cream to factories, or making butter and cheese themselves, and it would take the four inspectors two years to visit all of them once. Of course some of these dairies must be visited many times, and the inspector must spend days with the district attorney and in court before any improvement is made.

There are a great many fine stables and dairy houses being built at the present time, and we have inquiries nearly every day as to the best way of building and how to meet the requirements of the law. But there are yet many that start in dairying without the necessary equipments and buildings, making no provisions for heating water in which to wash and sterilize their utensils, nor for a room in which to handle, cool and store their product. To have these errors corrected has been our greatest fight.

The boards of health of municipalities that have their own dairy inspectors, have greatly assisted us in our work. They can get better results, first, because they have time to visit dairies more frequently, and secondly, because they can recommend that the permit to sell milk in the municipality be taken away unless the milk producers comply with the rules adopted by the Board of Health. We can demand improvements but must rely on the district attorneys, judges, and juries to enforce our demands.

With the creameries we have had little or no trouble. The small and poorly constructed plants are fast dropping out of business or being turned into skimming stations and fine new plants, equal to the best creameries in any country, are taking their places. In some old plants so many changes were ordered by the inspectors that the owners tore them down and built new. At times some of the employees get negligent, but, if the attention of the management is called to it by the inspector, the trouble is nearly always corrected at once. The creamery managers are in perfect accord with the State Dairy Bureau as far as the sanitary conditions are concerned and give us their moral support. Some years ago, when inspection could not be made otherwise, they assisted us financially as well. The great trouble at this time is that they are demanding inspection on every side and we have not enough men to accomodate them all. There are about two hundred creameries in the State, and some of them have as many as six hundred patrons. We must at present work principally in the most concentrated dairy districts to accomplish the most good at the least expense.

The bureau has done considerable work throughout the State collecting samples of milk to determine whether the law prohibiting adulteration and the use of chemical preservatives is being violated. At the time (1907) and for some time after the law was passed the use of boron was very common. During the last year, though every sample of milk collected has been analyzed for preservatives, only three have been found containing formaldehyde and seven containing boron. Much of the milk sold by milk dealers is below the standard established by law in this State, and about fifty per cent of the samples taken from restaurants

and hotels in some of the cities are below standard. Some are low in both fat and solids not fat.

In the majority of cases brought by this bureau the defendants have plead guilty and paid the fine, but some complaints have been filed where it appears that the cases will never come up for trial. Others have been dismissed, some have been heard and judgment suspended, and others heard and taken under advisement, and though months have passed, we have not been able to learn what the decision was.

Restaurants and hotels can usually buy good milk from dealers or dairies for sixty cents a can containing twelve quarts. A glass, such as is usually served for five cents, is about one third of a quart. There should be enough profit in this business to assure their customers receiving good, fresh, and pure milk. We believe that the law as it now stands is just and should be enforced.

CALIFORNIA MEATS.

The Meat Question in California.

By WILLIAM F. SNOW.

When the author of the "Jungle" wrote his story of the Chicago packinghouses in 1906 he had in mind the employees' problems of sociology and the hygiene of occupation rather than the marketing of healthy meat. It is probable that he viewed with much impatience the manner in which the public passed over the moral of the tale and proceeded to safeguard its own stomach.

The story may have served as an accidental stimulus to crystallize public action, just as any foreign substance dropped into certain liquids on the point of crystallization will cause their instantaneous solidification. Be this as it may, since the appearance of Sinclair's book there has been a steady effort on the part of the public to improve the meat supply.

Long before this activity on the part of the public the United States Department of Agriculture began the scientific investigations and administrative experiments necessary for developing a satisfactory and economical method of public health control of the meat supply. The demands of foreign commerce induced congress to enact the laws governing the inspection of meat for export trade, and ultimately to extend this supervision to interstate shipments of meat. This has had two results: (1) It has insured only clean, healthy American meats in foreign markets, and has made possible these same meats in a few of the markets in the larger cities of our own country. It has proved that such inspection may be made effective without increasing the consumers' price for meats. (2) It has also placed a premium on selling animals of doubtful health to small slaughterhouses for sale to local markets not under Government supervision.

California needs but to standardize the inspection of her intrastate meats in accordance with the Federal requirements, to have a clean, healthy meat supply throughout the State. This, of course, involves the solution of many local difficulties and the development of inter-county coöperation, if it is to be accomplished without great expense

to the taxpayers, or increased cost of meat. Yreka, Oakland, San Francisco, and Los Angeles have been making steady progress in the fight for adequate meat legislation. Many other cities and towns are making less strenuous efforts in the same direction. Redding is planning to establish a union slaughterhouse reservation, and many cities have been very energetic in demanding that their slaughterhouses clean up.

The education of the public in the essentials of a wholesome meat supply should be pushed with more vigor than has been evidenced in the past. Both those who believe in a meat diet and those who oppose all slaughtered meats should find no difficulty in uniting in this work.



This is the residence of the employees of a slaughterhouse on one of the tributaries of the Sacramento river, a short distance above the water intake of a thriving city. The hog is less dangerous than the human users and abusers of the stream. On the stream below the lower right hand corner is the slaughterhouse, which uses the stream for the twofold purpose of wash water for the "wiping rags" and as a carrier for the refuse.

If the interests of the small butcher and his independence from the large slaughterhouses are to be conserved it will be necessary to establish municipal slaughterhouses under the administration of established districts. There are now in operation in the United States a number of such slaughterhouses for communities of 20,000 to 30,000 population. It has been found possible to make some of these self-sustaining on a very low schedule of fees. The general plan of these municipal abattoirs is to build and equip a modern sanitary slaughterhouse, place it under the management of a competent expert, and arrange a schedule of fees for slaughtering the various animals used in the meat trade. The meat retailer then deals directly with the cattle-

man or farmer, either buying his animals on the hoof and taking his own chances on those condemned on being slaughtered, or buying them dressed, in which case the farmer who produces them must stand the loss of those condemned at slaughter. The city or sanitary-meat district plans only to charge enough to cover the cost of maintenance and interest on its investment.

The time will probably come when an awakened public will demand the universal adoption of some such plan, and the present unsightly, unsanitary, intolerable nuisances dotted all over California's watersheds and known as "the slaughterhouses" will be only a matter of unsavory memory.



This unique slaughterhouse cooling room is described in the accompanying article on the Madera plan. Note the double roof and the "ventilated" side walls.

But this time has not yet arrived! There must be stepping stones. The following inexpensive plans for slaughterhouses in California are given as illustrations of what may reasonably be demanded by any community, pending the establishment of a municipal abattoir.

THE MADERA PLAN. This is represented by a small slaughterhouse. The owner slaughters each week from two to four heaves, six to twelve sheep, and several hogs. His equipment consists of three divisions: a feeding barn and corral, a killing shed, and a cooling house. The location provides enough slope for drainage. The feeding barns are only remarkable because they are clean. The killing shed is equipped with the customary large, overhead hoisting wheel and general apparatus, but the floor is of tight fitting hardwood planks, kept scrubbed like a good housekeeper's sink-board. The slope is adequate to carry all refuse and washings out to a cement floor connecting by a narrow runway with the hogpens, and by a gutter with culverted soil at some distance. The salting bed for skins is well arranged and apart from the central workroom. The furnace and scalding vat, and scraping board for hogs is conveniently adjacent to the workroom but is separately drained and floored

with cement. All these and other details are common to the majority of carefully conducted slaughterhouses in California, but the cooling house is unique. A small iron track leads from the killing shed fifty feet to this cooling house. When the animal has been killed and dressed its body is placed on a flat-car which is pushed along this track to the cooling house where it is finally quartered and hung awaiting transportation to the refrigerator of the retail butcher.

The familiar framework of a California tank and windmill forms the four sides of this cooling house. The ground inside this frame and for ten inches outside it is cemented, the outside ten inches being arranged as a gutter leading to one outlet point which leads to the field. The four sides of this frame are screened with ordinary iron fly screening from the floor to a height of about ten feet. At this height there is a pyramidal board roof which not only covers the screened enclosure but extends ten feet beyond on all sides. This roof is overlaid by another shingled one providing an air space of six inches between the two. The outer area surrounding the screened room, which is thus roofed over on all sides, is enclosed by six-foot boarded walls, but these boards are each placed at a two-inch angle by nailing one side to the joists and blocking out the other two inches, giving the appearance of the blades of a windmill. The result of these arrangements is that cool currents of air are not obstructed and the heating up of the room is prevented by the double roof.

Just outside the wire screening of the inner room below the roof a perforated iron pipe runs round the four sides. These perforations are one inch apart. Hung from this pipe are long jute curtains that reach to the cement gutter at the floor level. This iron pipe is connected with one from the water tank above. Thus these curtains may be kept constantly saturated with water without waste. Inside the screened and curtained room thus constructed the meat racks and work table are arranged.

Not only is this room cool and sweet, but it is free from dust and has unrestricted circulation of air.

This is simply the California ranch house cooler magnified, but might well be imitated with small expense and great benefit by every small butcher and dairyman in the San Joaquin and Sacramento valleys.

THE COALINGA PLAN.—Coalinga has an energetic Health Board and progressive meat dealers. The essential features of the Coalinga plan are (1) a continuous cement working floor for all the processes of the work, and a roof for protection from the sun, and for support for the overhead apparatus; (2) an overhead suspension trolley is required, with necessary switch tracks from the killing runway to the scalding kettles, the central working floor, and the "finishing" and cooling room. There are no walls except that the "cooling room" is required to be walled and ceiled with wire fly screening. The meat is required to be removed as soon as possible to the refrigerator rooms of the local butchers. Hogs are not permitted to be fed near the slaughter-platform and all washings are required to be flushed from the entire floor and carried seventy-five feet to a catchment basin and alternating ditch system of irrigation.

These are but two of many ingenious plans which have been or can be developed if the public demands sanitary slaughterhouses. Such a demand is undoubtedly the first step toward general improvement of California's meat supply. The next step is to convince the public that if it is worth while to spend \$3,000,000 annually for Federal meat inspection in order to ensure healthy meat for foreign and interstate commerce, it is doubly important to spend such sums as may be necessary to similarly inspect and safeguard the intrastate meat supply.

THE NEED OF MUNICIPAL MEAT INSPECTION.

By **GEORGE S. BAKER, M.D.**, Inspector in charge, Bureau of Animal Industry,
San Francisco.

The Federal Government, through the Bureau of Animal Industry of the United States Department of Agriculture, maintains a very rigid inspection of meats and meat food products which enter into interstate or export trade. It has no jurisdiction over the local market, except that, when a plant is working under Federal control, everything produced by this plant is subject to inspection, regardless of whether the product is to be shipped out of the State or not. In this way it

protect the meat market in every way possible but it can not force its inspection upon a home dressed carcass which is sold within a State.

In a State as large as California there is naturally a very large number of slaughterers and manufacturers of meat food products, sausages, lard, etc. which do not come under the supervision of the Federal inspectors. Also under the act of Congress providing for the inspection of meats the farmer and retail butcher and dealer are exempt from the operation of the law so that unless the State or the municipality provide inspection the people are without any protection from diseased meats so far as these local dealers are concerned.

There are only four points in California where Federal inspection is maintained, San Francisco, Los Angeles, Pomona, and San Diego, and



Where babbling brook and slaughterhouse come together the babbling brook "gets lost" and so does the meat. The surest progress against such unsightly and dangerous conditions as this will be made through showing the people fearlessly just where their meats come from and asking them to discriminate between meat from clean and inspected slaughterhouses and the other kind.

at every one of these points the uninspected plants outnumber those working under Government supervision, and, in the aggregate, far exceed the inspected plants in their annual output.

In addition to inspecting the animals slaughtered and their products, Federal inspectors exercise a very close supervision over the sanitation of every part of every establishment. Inspection is not begun until the plant is in proper sanitary condition, and is discontinued unless the standard set is maintained. No such conditions are tolerated in a Government inspected plant as the common rule in country, or even in city slaughterhouses not working under Federal control. No offal of any description is allowed to accumulate about a Government inspected

plant and the plant is cleaned from top to bottom every day. The houses are effectively screened to exclude flies.

What a different picture is presented by the average uninspected house. Offal is thrown about and left to decay on the premises, or is dumped into the basement, or just outside the building, where it is fed to hogs. Rats infest the premises and the place swarms with flies. This association of hogs, rats, and offal forms an ideal condition for the propagation of disease, some forms of which are transmissible to man,—trichinosis, tapeworm, etc. Where hogs are fed upon beef offal, they are sure to contract tuberculosis.

No diseased animal gets by the government inspector. The seller and buyer have both learned this, with the result that the latter refuses to purchase apparently diseased stock except subject to inspection. The seller has learned that when his visibly diseased animals are condemned in a Government inspected house, he is paid only the value of the hide. The natural result follows: most of the dairy cows, which are suspected of being tubercular, go to the plants not working under Federal inspection, and the meat is undoubtedly sold to the unsuspecting public at the same price as Government inspected meat.

The remedy for this very undesirable state of affairs is the municipal slaughterhouse, where everything is killed under the direct supervision of the municipal authorities. Such municipal slaughterhouses or abattoirs are of direct benefit to the slaughterer, as they furnish facilities for disposing of offal or by-products at a profit, which the small butcher can not afford to provide for himself.

The consumer must consider the above conditions when buying other than Government inspected meats.

Government inspected meats all bear a brand reading, "U. S. Inspected and Passed."

REPORT OF BUREAU OF ADMINISTRATION FOR JANUARY, 1913.

JOHN F. LEINEN, Director.

Division of Sewage Disposal and Water Supplies.

In January one formal application was made to the State Board of Health for a permit for sewage disposal. This application was made by the city of Orange, and is the fourth from cities and towns whose sewage is finally disposed of by broad irrigation. In two cases these irrigated lands are far from water courses. Such applications are particularly gratifying to the Board, because they represent a desire on the part of the communities, which, strictly speaking, do not come under the exact interpretation of the law protecting the purity of inland waters, to have their sewerage and sewage disposal problems reviewed and approved by the State Board of Health.

Early in January the Consulting Engineer of the Board completed a comprehensive and detailed report on the sewerage and sewage disposal of Hanford. On the basis of this report the State Board of Health approved of the plans and specifications prepared by Messrs. Sloan and Robson of San Francisco for a new and improved sewerage and sewage treatment works.

Throughout the month the Board continued its investigations of the Sacramento sewerage problem, Mr. C. G. Gillespie remaining in the field for this work, as during the previous month. The Consulting Engineer of the Board visited Sacramento on January 21st, in connection with these studies. The investigations comprehend measurements of the volume of sewage contributed by the older portion of Sacramento, tributary to the pumping plant in the southwesterly portion of the city, the volume of water consumed by the city and the character and composition of the sewage.

On January 22d, the Consulting Engineer of the Board, in company with Dr. Simpson, county health officer, Mayor Monahan, and City Engineer Ryder of San Jose, visited the East San Jose sewage disposal works and the refuse disposal dump of San Jose City.

On January 22d, and 25th, the Consulting Engineer of the Board held conferences with reference to the proposed project for the new and improved sewerage and sewage disposal works for the town of Los Gatos. The site recently purchased by the town for the sewage disposal plant was visited, and general advice was given as to the probably most suitable and efficient scheme of works.

During the month the Consulting Engineer of the Board made detailed studies with respect to the proper treatment of the trade wastes from the Anaheim Sugar Company's plant near Anaheim, California. While this work was not done directly for the Board, the State is interested in the problem because of complaints which had been made to the State Board of Health by residents of this locality who objected to odors arising from the decomposition of the wastes which had been discharged in large lagoons near the factory during the sugar making season or campaign of 1912.

REPORT OF BUREAU OF VITAL STATISTICS.*

GEORGE D. LESLIE, Director.

State Totals and Annual Rates.—The following table shows for California as a whole the birth, death and marriage totals for the current and preceding months in comparison with those for the corresponding months of last year, as well as the annual rates per 1,000 population represented by the totals for the current and preceding months. The rates are based on an estimated midyear population of 2,579,874 for California in 1912, the estimate having been made by the Census Bureau method with slight modifications.

Birth, Death and Marriage Totals, with Annual Rates per 1,000 Population for Current and Preceding Months for California: December.

Month.	Monthly total.		Annual rate per 1,000 population: 1912.
	1912.	1911.	
December—			
Births	3,578	3,275	16.4
Deaths	3,581	3,432	16.4
Marriages	3,197	2,652	14.6
November—			
Births	3,236	2,722	15.3
Deaths	2,992	2,889	14.1
Marriages	2,773	2,490	13.1

The birth, death and marriage totals for December, as for preceding months, were much greater in 1912 than in 1911. The birth registration has been much greater each month this year than in the corresponding month of last year.

County Totals.—The first table which follows below shows the monthly birth, death and marriage totals for the principal counties of the State, the list being limited to counties having a population of at least 25,000 according to the Federal Census of 1910. Totals are also shown for San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), as well as for Los Angeles and Orange counties together.

City Totals.—The second of the following tables gives the birth and death totals for the principal freeholders' charter cities, the list including all chartered cities with a census population of at least 15,000 in 1910. Totals are given likewise for San Francisco in comparison with Oakland, Alameda, and Berkeley, the three cities adjoining one another on the east shore of San Francisco Bay, as well as

*NOTE.—The present report is for the month preceding, but one. This order must be followed hereafter because of the publication of the Bulletin during the early part of the month, before the tabulation of records for the preceding month is completed.

for Los Angeles in comparison with neighboring chartered cities (Long Beach, Pasadena, Pomona, and Santa Monica).

Birth, Death and Marriage Totals, for Principal Counties: December.

County.	December, 1912.		
	Births.	Deaths.	Marriages.
California	3,578	3,581	3,197
Counties of more than 25,000 population (1910):			
Alameda	338	340	283
Butte	42	31	20
Contra Costa	37	39	25
Fresno	138	98	122
Humboldt	43	36	39
Kern	66	55	52
Los Angeles	915	921	733
Marin	15	24	151
Orange	34	43	113
Riverside	41	56	42
Sacramento	145	102	128
San Bernardino	84	108	75
San Diego	122	153	113
San Francisco	566	627	568
San Joaquin	64	112	61
San Mateo	43	27	23
Santa Barbara	83	31	23
Santa Clara	128	126	116
Santa Cruz	34	31	30
Solano	25	34	20
Sonoma	45	74	60
Tulare	36	53	30
Selected groups:			
San Francisco and other bay counties.....	999	1,057	1,050
Los Angeles and Orange counties.....	949	964	846

Birth and Death Totals, for Principal Cities: December.

City.	December, 1912.	
	Births.	Deaths.
Freeholders' charter cities.....	2,165	2,216
Cities of more than 15,000 population (1910):		
Alameda	27	30
Berkeley	67	36
Fresno	50	37
Long Beach	26	46
Los Angeles	631	548
Oakland	218	206
Pasadena	54	53
Riverside	19	32
Sacramento	120	88
San Diego	106	128
San Francisco	566	627
San Jose	51	44
Stockton	37	82
Selected groups:		
San Francisco	566	627
Oakland, Alameda and Berkeley.....	312	272
Totals, bay cities.....	878	899
Los Angeles	631	548
Neighboring cities	101	142
Totals	732	690

Causes of Death.—The following table shows the classification of deaths in California for the current month, in comparison with the preceding month:

Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths, for Current and Preceding Month, for California: December.

Cause of death.	Deaths: December.	Proportion per 1,000.	
		December.	November.
ALL CAUSES -----	3,581	1,000.0	1,000.0
Typhoid fever -----	35	9.8	16.4
Malarial fever -----	5	1.4	2.0
Smallpox -----	1	0.3	0.3
Measles -----	1	0.3	-----
Scarlet fever -----	3	0.8	0.7
Whooping-cough -----	5	1.4	3.3
Diphtheria and croup -----	21	5.9	7.7
Influenza -----	36	10.1	4.3
Other epidemic diseases -----	11	3.1	5.7
Tuberculosis of lungs -----	434	121.2	117.0
Tuberculosis of other organs -----	76	21.2	15.4
Cancer -----	190	53.1	66.5
Other general diseases -----	140	39.1	46.5
Meningitis -----	42	11.7	8.0
Other diseases of nervous system -----	303	84.6	69.2
Diseases of circulatory system -----	631	176.2	175.8
Pneumonia and broncho-pneumonia -----	407	113.6	85.6
Other diseases of respiratory system -----	129	36.0	25.1
Diarrhea and enteritis, under 2 years -----	66	18.4	23.7
Diarrhea and enteritis, 2 years and over -----	32	8.9	11.0
Other diseases of digestive system -----	154	43.0	56.8
Bright's disease and nephritis -----	220	61.5	63.5
Childbirth -----	34	9.5	9.7
Diseases of early infancy -----	132	36.9	35.1
Suicide -----	66	18.4	16.0
Other violence -----	254	70.9	84.6
All other causes -----	153	42.7	50.1

In December there were 631 deaths, or 17.6 per cent of all, from diseases of the circulatory system, and 510, or 14.2 per cent, from various forms of tuberculosis. Heart disease thus led tuberculosis greatly, as for some months past.

Other notable causes of death were: Diseases of the respiratory system, 536; diseases of nervous system, 345; violence, 320; diseases of digestive system, 252; Bright's disease and nephritis, 220; cancer, 190, and epidemic diseases, 118.

The deaths from epidemic diseases were as follows: Influenza, 36; typhoid fever, 35; diphtheria and croup, 21; malarial fever and whooping cough, each 5; and all other epidemic diseases, 16.

The deaths from the three leading epidemic diseases reported for the month were distributed by counties as follows:

Influenza.		Typhoid fever.		Diphtheria and croup.	
Butte	1	Alameda	1	Alameda	3
El Dorado	1	Fresno	3	Fresno	3
Imperial	1	Glenn	1	Imperial	1
Inyo	1	Kern	1	Kern	1
Los Angeles	18	Los Angeles	5	Los Angeles	2
Merced	1	Mendocino	1	Riverside	1
San Diego	2	Monterey	1	Sacramento	1
San Francisco	1	Sacramento	3	San Bernardino	1
Santa Barbara	1	San Bernardino	1	San Diego	1
Santa Clara	1	San Diego	2	San Francisco	2
Santa Cruz	1	San Francisco	7	San Mateo	1
Sierra	1	San Joaquin	1	Santa Clara	1
Sonoma	1	Santa Barbara	1	Sonoma	1
Stanislaus	1	Santa Clara	1	Stanislaus	1
Tulare	1	Santa Cruz	1	Tulare	1
Ventura	1	Stanislaus	1		
Yolo	2	Tehama	1		
		Tulare	1		
		Tuolumne	1		
		Yolo	1		
Total	36	Total	35	Total	21

Geographic Divisions.—The following table presents data for geographic divisions, including the metropoliation area, or San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), in comparison with the rural counties of Northern and Central California.

Deaths from Main Classes of Diseases, from Geographic Divisions: December.

Geographic Division.	Deaths: December										
	All causes	Epidemic diseases	Typhoid fever (all forms)	Cancer	Diseases of nervous system	Diseases of circulatory system	Diseases of respiratory system	Diseases of digestive system	Bacterial diseases and venereal	Violence	All other causes
THE STATE	3,581	118	510	190	345	631	536	253	220	320	459
Northern California	368	8	46	12	41	75	41	26	21	40	58
Coast counties	194	3	32	7	28	34	20	14	17	13	26
Interior counties	174	5	14	5	13	41	21	12	4	27	32
Central California	1,860	65	229	95	178	323	291	141	122	186	230
San Francisco	627	15	92	45	56	111	101	43	36	62	66
Other bay counties	430	9	48	22	48	82	61	36	33	42	49
Coast counties	210	11	25	6	23	47	28	12	14	17	27
Interior counties	593	20	64	22	51	83	101	50	39	65	88
Southern California	1,353	45	235	83	126	233	204	85	77	94	171
Los Angeles	921	32	154	67	86	165	147	50	54	60	106
Other counties	432	13	81	16	40	68	57	35	23	34	65
Northern and Central California	2,228	73	275	107	219	398	332	167	143	226	288
Metropolitan area	1,057	24	140	67	104	193	162	79	69	104	115
Rural counties	1,171	49	135	40	115	205	170	88	74	122	173

Sex and Age Periods.—The proportion of the sexes among the 3,581 decedents in December was: Male, 2,243, or 62.6 per cent, and female, 1,338, or 37.4 per cent.

The following table shows the age distribution by numbers and per cents, of deaths classified by sex:

Deaths Classified by Sex and Age Periods, with Per Cents by Age Periods, for California: December.

Age period.	Deaths.			Per cent.		
	Totals.	Male.	Female.	Total.	Male.	Female.
ALL AGES-----	3,581	2,243	1,338	100.0	100.0	100.0
Under 1 year-----	347	205	142	9.7	9.1	10.6
1 to 4 years-----	126	77	49	3.5	3.4	3.7
5 to 14 years-----	90	55	35	2.5	2.5	2.6
15 to 24 years-----	174	102	72	4.9	4.6	5.4
25 to 34 years-----	351	241	110	9.8	10.7	8.2
35 to 44 years-----	379	255	124	10.6	11.4	9.3
45 to 54 years-----	450	301	149	12.6	13.4	11.1
55 to 64 years-----	455	307	148	12.7	13.7	11.1
65 years and over-----	1,209	700	509	33.7	31.2	38.0

This table shows that relatively more females than males died at the age periods under 25 years as well as at 65 years and over, while relatively more males than females died at the age periods from 25 to 64 years.

Occupations.—The table below gives, for deaths 15 years and over, the number of men and women for whom such occupation was reported in contrast with those for whom no gainful occupation was shown.

Deaths, 15 Years and Over, Classified by Sex and Occupation, with Per Cents by Sex, for California: December.

	Deaths.			Per cent male.	Per cent female.
	Total.	Male.	Female.		
15 YEARS AND OVER-----	3,018	1,906	1,112	63.2	36.8
Occupation reported-----	1,723	1,620	103	94.0	6.0
No gainful occupation-----	1,295	286	1,009	22.1	77.9

Of the 1,723 decedents for whom occupations were reported the males numbered 1,620, or 94.0 per cent, and the females only 103, or 6.0 per cent.

The following table shows the distribution of male decedents 15 years and over, engaged in the main kinds of occupation.

Deaths of Males Fifteen Years and Over Engaged in Gainful Occupations, Classified by Kind of Occupation, with Per Cents, for California: December.

Kind of occupation.	Males 15 years and over.	
	Deaths.	Per cent.
ALL OCCUPATIONS-----	1,620	100.0
Professional-----	82	5.1
Clerical and official-----	104	6.4
Mercantile and trading-----	128	7.9
Public entertainment-----	42	2.6
Personal service, police and military-----	58	3.6
Laboring and servant-----	338	20.8
Manufacturing and mechanical industry-----	330	20.4
Agriculture, transportation and other outdoor pursuits-----	526	32.5
All other occupations-----	12	0.7

Of the 1,620 male decedents for whom occupations were reported, 526, or 32.5 per cent, were engaged in agriculture, transportation, and other outdoor pursuits; 338, or 20.8 per cent, in laboring and servant work; 330, or 20.4 per cent, in manufacturing and mechanical industry, and altogether 426, or 26.3 per cent, in professional, clerical and official, mercantile and trading, and all other occupations.

It should be noted that the figures on deaths occurring in different occupations are necessarily affected by the fact that in California a large number of men are engaged in agriculture and other outdoor pursuits, while relatively few follow professional and similar occupations which show small numbers of deaths.

REPORT OF BUREAU OF PUBLICATIONS AND HEALTH INFORMATION FOR JANUARY, 1913.

GUY P. JONES, Acting Director.

Clean-up days are now in order and this Bureau has some publications containing suggestions for clean-up campaigns that may be useful to interested citizens. The setting aside of a certain day each Spring, for concentrated effort in municipal house cleaning, has come to be a tradition in most California cities. Governor Johnson, in an official proclamation last year, designated April 18th as "Fire Prevention Day," emphasizing "the great waste caused by carelessness, lack of cleanliness or the accumulation of rubbish in yards, cellars, alleyways and unfrequented streets." As a result, nearly every city in the State engaged in general cleaning upon that day, and from present indications the Spring of 1913 will have more clean-up days than any previous year.

The first newspaper clipping containing an announcement of activities of the sort, to reach this Bureau, is from Bakersfield, where March 1st is designated as clean-up day. Other cities to join in campaigns of the sort are Chico, Sierra Madre, Covina, Corona, Richmond and Berkeley, with the names of other cities being added to the list every day.

The edition of the bulletin containing articles upon this subject is very limited and copies can be supplied only for a short time.

REPORT OF THE BUREAU OF THE HYGIENIC LABORATORY FOR JANUARY.

WILBUR A. SAWYER, M.D., Director.

Making Diphtheria Carriers.

When people are exposed to diphtheria patients, some take the disease, in the throats of others the germs lodge and multiply without producing symptoms, and still others escape both the acute disease and the carrier state.

When diphtheria has been present in a community for some months, the number of carriers is found, on investigation, to be large. For example, there were many cases of diphtheria in Hayward from August, 1907, to February, 1908. In February cultures were taken from the throats of the 690 grammar school children and were sent to the State Hygienic Laboratory for examination. One hundred and twenty-two, or approximately 18 per cent of the cultures were positive, showing that large numbers of the children had become carriers and were a possible danger to others. In contrast to these figures are the results of examinations in 1908 of cultures from about 350 healthy men of the Freshmen class at the University of California. Careful study of the cultures in the bacteriological laboratory of the University showed only 2 1-2 per cent of positive cultures. These two illustrations suggest that the usual number of diphtheria carriers in a California community would be about 3 per cent, but that in the presence of an outbreak of diphtheria the number of carriers might easily rise to 18 per cent. It seems probable that much of this rapid increase in the number of diphtheria carriers, in communities where diphtheria is present, is due to the frequent neglect of strict isolation of the patient from the healthy persons who are specially exposed to infection on account of their confinement with the patient in narrow premises through quarantine regulations.

During the past few months several physicians have sent cultures to the laboratory from all the members of households which were in quarantine for diphtheria. An astonishing number of carriers were, in this way, discovered. Two of eight children in one family came down with diphtheria. The other six children gave positive cultures shortly afterward, but did not develop the disease. A family, consisting of a father, mother, and five children, lived under crowded conditions in a very small cottage. One of the children came down with diphtheria. Soon afterward cultures were taken from the whole family, and all except one child showed the presence of diphtheria bacilli. The disease developed soon afterward in one of the children, but the other four persons who had the bacilli in their throats were carriers only. In another family there was one severe case of diphtheria in one of the children. Cultures from the remainder of the members of the household showed diphtheria bacilli in the inflamed eye of the mother, who was caring for the sick child, and diphtheria bacilli in the throats of five of the six well persons in the household.

The illustrations which I have given show that the physician attending a case of diphtheria, and also the members of the household, should

feel it necessary to isolate cases of diphtheria from other persons within the quarantined premises. This should be efficiently done in order to prevent well persons, both from coming down with diphtheria and from becoming carriers and spreading the disease when the quarantine is lifted. It is easy to see why diphtheria continues to spread in many communities which meet the requirements regarding quarantine of diphtheria cases and which do not release the patient before securing two successive negative cultures. The protection from diphtheria would be much more complete if strict isolation of the patient and convalescent within the quarantined premises were more often maintained. Another wise precaution before raising the quarantine would be to take cultures from the entire household, as well as from the recovered patient, in order to detect all the carriers.

Division of Biological Examinations.

Summary of Examinations Made in the California State Hygienic Laboratory
During the Month of January, 1913.

Condition suspected.	Positive.	Negative.	Inconclu- sive.	Total.
Main Laboratory at Berkeley:				
Anthrax -----		4		4
Diphtheria -----	107	88	3	198
Gonococcus infection -----	4	4		8
Hookworm -----		2		2
Malaria -----		2		2
Rabies -----	20	3		23
Tuberculosis -----	6	17		23
Typhoid -----	6	11		17
Water pollution -----	2			2
Miscellaneous -----		1	1	2
				281
Northern Branch at Sacramento:				
Diphtheria -----	5	9	2	16
Tuberculosis -----		6		6
Typhoid -----		2		2
				24
San Joaquin Valley Branch at Fresno:				
Diphtheria -----	5	7		12
Malaria -----		1		1
Tuberculosis -----		2		2
Typhoid -----		1		1
				16
Southern Branch at Los Angeles:				
Diphtheria -----	4	14	2	20
Tuberculosis -----		1		1
Typhoid -----	1	1	1	3
				24
Total number of examinations -----				345

Division of Preventive Therapeutics.*Pasteur Treatment for the Prevention of Rabies by the State Hygienic Laboratory
During the Month of January, 1913.*

	Treatment commenced.	Treatment completed.
Main Laboratory at Berkeley.....	1	0
Northern Branch at Sacramento.....	6	7
San Joaquin Valley Branch at Fresno.....	3	4
Southern Branch at Los Angeles.....	0	0
Laboratory of Sacramento Board of Health, by deputized bacteriologist	2	5
Laboratory of San Francisco Board of Health, by deputized bacteriologist	9	7
Laboratory of Los Angeles Board of Health, by deputized bacteriologist	12	0
Laboratory of Letterman General Hospital, Presidio, by deputized bacteriologist	0	0
Totals	33	23

Division of Epidemiological Investigations*Epidemiological Investigations During January, 1913.*

Main Laboratory at Berkeley:	
Special investigations by the Director.....	5
Investigation of five cases of smallpox in Berkeley.	
Investigation of a diphtheria outbreak at Hayward.	
Investigation of a case of suspected human glanders at Hayward.	
Investigation of a case of smallpox in Oakland.	
Investigation of a case of infantile paralysis near San Leandro.	
Special investigations by the chief bacteriologist.....	2
Investigation of the typhoid fever situation at Antioch.	
Co-operation with the city of Sacramento in the investigation of the water supply.	

Public Health Instruction.*Participation in Instruction in Public Health During January, 1913.*

Main Laboratory at Berkeley:	
Bacteriological instruction outfits sent out.....	3
Bacteriological instruction outfits in use.....	24
Lectures or talks by the Director.....	1

REPORT OF BUREAU OF FOODS AND DRUGS FOR JANUARY, 1913.

M. E. JAFFA, Director.

In answer to many questions concerning the disposition of frozen fruit it may be said that the U. S. Department of Agriculture, Bureau of Chemistry, has taken the position that oranges will be considered as decomposed, and therefore not salable as a human food when, upon cross-section, 20 per cent of the fruit is dry or otherwise being plainly frost-injured. The proportion of allowable fruit of this character has been set at 15 per cent. Fruit which is only slightly damaged by frost should be properly labeled when offered or exposed for sale.

Upwards of 150 samples of foods, food products, drugs, etc., have been examined at the State Laboratory during the month of January. Prominent among the examinations were spices, extracts, syrups, evaporated milks and catsups.

This laboratory co-operated with the City Laboratory of Sacramento in the matter of analysis of Sacramento River water and sewage.

A large number of samples representing foods and other supplies were received from the different state institutions. These have been examined and reported on to the stewards of the respective institutions.

Food Inspection Decision No. 149, reprinted below, has been received at the State Laboratory, in accordance with section 3 of the food law, reading—

“The standard of purity of food and liquor shall be that proclaimed by the Secretary of the United States Department of Agriculture.”

This decision becomes automatically part of our law.

Food Inspection Decision No. 149.

USE OF COPPER SALTS IN THE GREENING OF FOODS.

Paragraph 4 of Food Inspection Decision No. 148 is hereby modified to read as follows:

The Secretary of Agriculture, therefore, will regard as adulterated, under the food and drugs act, foods greened with copper salts which, on and after January 1, 1913, are offered for entry into the United States or are manufactured or offered for sale in the District of Columbia or the Territories, or which, on and after May 1, 1913, are shipped in interstate commerce.

Food Inspection Decision No. 150.

FROZEN CITRUS FRUIT.

It has come to the attention of the Board of Food and Drug Inspection that, as a result of a recent freeze, citrus fruit that has been badly damaged by frost is being placed on the market.

Citrus fruit is injured in flavor by freezing and soon becomes dry and unfit for food. The damage is evidenced at first by a more or less bitter flavor, followed by a marked decrease in sugar, and especially in acid content. Fruit which has been materially damaged by freezing is inferior and decomposed within the meaning of the Food and Drugs Act.

For the guidance of those engaged in shipping citrus fruit, it is announced that, pending further investigation, the following principles will be observed in enforcing the Food and Drugs Act:

Citrus fruit will be deemed adulterated within the meaning of the Food and Drugs Act if the contents of any package found in interstate commerce contain 15 per cent or more of citrus fruit which, on a transverse section through the center, shows a marked drying in 20 per cent or more of the exposed pulp.

Any person wishing copies of any of the following Notices of Judgments may obtain same by addressing the Director of the State Laboratory, University of California, Berkeley, Cal.

- Nos. 1680, 1689, 1798, 1727—Misbranding of Coffee.
 No. 1777—Misbranding of Fig Prune Cereal.
 No. 1685—Misbranding of Peas.
 No. 1700—Misbranding of So-called Fresh Green Peas.
 Nos. 1682, 1683, 1695, 1743, 1746, 1786, 1787, 1795—Adulteration and Misbranding of Vinegar.
 Nos. 1684, 1767—Adulteration and Misbranding of Apricot Cordial.
 Nos. 1686, 1694, 1809—Adulteration and Misbranding of Cattle and Horse Feed.
 No. 1707—Misbranding of Cottonseed Meal.
 No. 1688—Misbranding of Lima Beans.
 Nos. 1690, 1709, 1714, 1716, 1719, 1724, 1725, 1729, 1761—Adulteration and Misbranding of Catsup.
 No. 1691—Alleged Misbranding of Cuticura Ointment and Cuticura Soap.
 No. 1706—Misbranding of "Make-Man" Tablets.
 Nos. 1692, 1802—Misbranding of So-called Imperial Spring Water.
 No. 1681—Adulteration and Misbranding of So-called Peppermint Extract.
 No. 1687—Adulteration and Misbranding of Oleo Resin Vanilla.
 Nos. 1764, 1797, 1801, 1807—Adulteration and Misbranding of So-called Prime Vanilla Extract.
 No. 1772—Misbranding of Lemon Extract and Vanilla Extract.
 Nos. 1693, 1710, 1711, 1712, 1715, 1744—Adulteration of Tomato Paste.
 Nos. 1805—Adulteration of Tomato Sauce.
 Nos. 1785, 1793—Adulteration of Tomato Pulp.
 No. 1696—Misbranding of Fish.
 Nos. 1697, 1698—Alleged Adulteration and Misbranding of Olive Oil.
 Nos. 1699, 1718, 1738, 1741, 1770, 1791, 1794—Adulteration of Shucked Oysters.
 No. 1701—Adulteration and Misbranding of So-called Laubenheimer Wine and of So-called Syrup of Tamarind.
 Nos. 1702, 1742—Adulteration of So-called Royal Strawberry Jelly and So-called Royal Raspberry Jelly.
 Nos. 1703, 1704—Adulteration of So-called "Gran Liqueur Della Stella."
 No. 1705—Adulteration of Frozen Eggs.
 No. 1730—Misbranding of Creme De Menthe.
 No. 1708—Adulteration of Confectionery (Jelly Beans).
 No. 1713—Misbranding of Salad Oil.
 Nos. 1717, 1747—Misbranding of Evaporated Milk.
 Nos. 1748, 1750, 1778, 1779, 1780, 1781, 1782—Adulteration of Milk.
 Nos. 1720, 1728, 1739, 1765—Adulteration and Misbranding of Cheese.
 Nos. 1721, 1722, 1731, 1732, 1771, 1775—Adulteration and Misbranding of So-called Maraschino Cherries.
 No. 1723—Adulteration of Chestnuts.
 No. 1726—Misbranding of So-called Sparkling Burgundy Wine.
 No. 1735—Adulteration of Canned Peaches.
 No. 1736—Misbranding of Butter.
 No. 1737—Adulteration and Misbranding of Ice Cream.
 No. 1740—Misbranding of Canned Corn.
 No. 1745—Adulteration and Misbranding of Fig and Honey Cakes.
 Nos. 1749, 1751—Adulteration of Cream.
 Nos. 1762, 1763—Adulteration and Misbranding of Sorghum and Corn Syrup.
 No. 1789, 1790—Misbranding of Syrup.
 No. 1766—Misbranding of Shred Cocoanut.
 No. 1768—Adulteration and Misbranding of Flour.
 Nos. 1769, 1776—Adulteration and Misbranding of So-called Apple Base Cider.
 No. 1773—Adulteration and Misbranding of Cottonseed Meal.
 No. 1774—Adulteration and Misbranding of Prepared Mustard and Horse-radish.
 No. 1783—Adulteration of Ice Cream Cones.
 No. 1784—Misbranding of Witch-Hazel.
 No. 1788—Misbranding of Lekvar (Compound of Prunes and Glucose).
 No. 1792—Adulteration and Misbranding of Vermouth.
 No. 1796—Adulteration and Misbranding of Nitroglycerine Tablets.
 No. 1799—Adulteration and Misbranding of Nitroglycerine Triturates.
 No. 1800—Adulteration of Nutmegs.
 No. 1803—Alleged Adulteration and Misbranding of Milk Chocolate.
 No. 1804—Misbranding of Pepper.
 No. 1806—Adulteration and Misbranding of Macaroni.
 No. 1808—Alleged Adulteration of Dried Peaches and of Dried Blackberries.
 No. 1810—Adulteration and Misbranding of Acetphenedin Tablets; Triturates Aloin, Iron, and Strychnine; Tablets Ferruginous Bland's and Nux Vomica; Tablets Flatulence; Nitroglycerine Tablets; Tablets Extract Nux Vomica; Salol Tablets; Tablets Strychnine Nitrate; Tablets Aloin; Belladonna, and Nux Vomica.

Cases Referred to District Attorneys January 4, 1913.

Name of article.	Offense.	Manufacturer or jobber.	Accused dealer.	Locality.
Fresh eggs -----	Mislabeled. Eggs were not fresh-----	-----	H. N. Edlin. Lincoln Market.	San Francisco.
Pork sausage -----	Mislabeled. Contains cereal not declared.----- Adulterated. Cereal substituted for pork.-----	-----	Lincoln Market -----	San Francisco.
Pork sausage -----	Mislabeled. Contains cereal not declared.----- Adulterated. Cereal substituted for pork.-----	-----	Lincoln Market -----	San Francisco.
Chopped meat -----	Adulterated. Contains sulphur dioxide.-----	-----	Saratoga Market -----	San Jose.
Sausage meat -----	Mislabeled. Contains cereal not declared.----- Adulterated. Cereal substituted for meat.-----	-----	Nickel & Brown Bros.-----	Napa.
Fresh eastern eggs-----	Mislabeled. Eggs were not fresh-----	Paul Peijers Produce Co. (Guarantors.)	-----	Los Angeles.
Fresh eastern eggs-----	Mislabeled. Eggs were not fresh-----	-----	Mission Grocery -----	Los Angeles.
Fresh eggs -----	Mislabeled. Eggs were not fresh-----	-----	Hardy & Westphal-----	Los Angeles.

LIST OF COUNTY HEALTH OFFICERS.

County.	Health officer.	Address.
Alameda	Dr. C. L. McKown	Niles
Alpine*	County Recorder Frank Smith	Markleeville
Amador	Dr. E. E. Endicott	Jackson
Butte	Dr. L. Q. Thompson	Gridley
Calaveras	Dr. Irwin B. March	San Andreas
Colusa	Dr. C. A. Poage	Colusa
Contra Costa	Dr. W. S. George	Antioch
Del Norte	Dr. E. M. Fine	Crescent City
El Dorado	Dr. L. M. Leisenring	Placerville
Fresno	Dr. G. L. Long	Fresno
Glenn	Dr. J. A. Randolph	Willows
Humboldt	Dr. Carl T. Wallace	Eureka
Imperial	Dr. Virgil McCoombs	El Centro
Inyo	Dr. I. J. Woodin	Independence
Kern	Dr. G. M. Bumgarner	Bakersfield
Kings	Dr. Ralph Motherol	Hanford
Lake	Dr. W. E. Upton	Kelseyville
Lassen	Dr. R. W. T. Garner	Susanville
Los Angeles	Dr. E. O. Sawyer	Los Angeles
Madera	Dr. Mary R. Butlin	Madera
Marin	Dr. J. H. Kuser	Novato
Mariposa	Dr. F. L. Wright	Mariposa
Mendocino	Dr. J. Liftchild	Ukiah
Merced	Dr. J. H. Mudd	Merced
Modoc	Dr. John Stille	Alturas
Mono*	Dr. R. A. Cushman	Bridgeport
Monterey	Dr. Garth Parker	Salinas
Napa	Dr. E. G. Smart	Napa
Nevada	Dr. Carl P. Jones	Grass Valley
Orange	Dr. John Wehrly	Santa Ana
Placer	Dr. J. S. Wheeler	Roseville
Plumas	Dr. F. D. Walsh	Quincy
Riverside	Dr. George E. Tucker	Riverside
Sacramento	Dr. Hugh Beattie	Elk Grove
San Benito	Dr. J. M. O'Donnell	Hollister
San Bernardino	Dr. Phillip M. Savage	San Bernardino
San Diego	Dr. O. G. Wicherski	San Diego
San Francisco	Dr. R. G. Brodrick	San Francisco
San Joaquin	Dr. H. C. Peterson	Stockton
San Luis Obispo	Dr. H. M. Cox	San Luis Obispo
San Mateo	Dr. W. G. Beattie	Colma
Santa Barbara	Dr. J. C. Bainbridge	Santa Barbara
Santa Clara	Dr. William Simpson	San Jose
Santa Cruz	Dr. W. H. Keck	Santa Cruz
Shasta	Dr. F. Stabel	Redding
Sierra	Dr. R. B. Davy	Downieville
Slakiyou	Dr. F. J. McNulty	Yreka
Solano	Dr. S. G. Bransford	Suisun
Sonoma	Dr. P. A. Meneray	Santa Rosa
Stanislaus	Dr. F. R. De Lappe	Modesto
Sutter	Dr. E. V. Jacobs	Meridian
Tehama	Dr. W. F. Maggard	Corning
Trinity	Dr. D. B. Fields	Weaverville
Tulare	Dr. W. A. Preston	Visalia
Tuolumne	Dr. Wm. Lyman Hood	Sonora
Ventura	Dr. A. A. Maulhardt	Oxnard
Yolo	Dr. W. J. Blevins	Woodland
Yuba	Dr. J. H. Barr	Marysville

LIST OF CITY HEALTH OFFICERS.

City.	Health officer.	City.	Health officer.
Alameda.....	Dr. A. Hieronymus	Kernville.....	_____
Albany.....	Dr. Robt. Hector	King City.....	_____
Alhambra.....	Dr. F. E. Corey	Kingsburg.....	_____
Alturas.....	Dr. John Stile	Lakeport.....	Jabez Banks
Alviso.....	_____	Larkspur.....	_____
Anaheim.....	Dr. J. L. Beebe	Lincoln.....	F. R. Elder
Antioch.....	Dr. W. S. George	Lindsay.....	Dr. W. W. Tourtillot
Arcadia.....	_____	Livermore.....	Dr. H. G. McGill
Arcata.....	Dr. G. W. McKinnon	Lodi.....	Dr. F. W. Colman
Arroyo Grande.....	_____	Long Beach.....	Dr. W. H. Newman
Auburn.....	A. S. Waldo	Lompoc.....	_____
Azusa.....	Dr. John E. Hill	Lordsburg.....	Dr. J. E. Hubble
Bakersfield.....	H. Farris	Los Angeles.....	Dr. L. M. Powers
Belvedere.....	Dr. Florence Scott	Los Banos.....	Dr. J. L. McClelland
Benicia.....	Dr. W. L. McFarland	Los Gatos.....	Dr. C. K. Small
Berkeley.....	Dr. J. J. Benton	Loyalton.....	Dr. G. L. Coates
Biggs.....	Dr. O. C. Hawkins	Madera.....	_____
Bishop.....	Dr. J. W. Shute	Maricopa.....	Dr. H. N. Taylor
Blue Lake.....	Dr. G. N. Wood	Martinez.....	Dr. E. E. Brown
Brawley.....	Dr. L. L. Lindsey	Marysville.....	Wm. Meek
Burbank.....	_____	Mayfield.....	Dr. F. M. Seibert
Burlingame.....	_____	McCloud.....	Dr. R. T. Legge
Calistoga.....	Dr. Henry Abrons	McKittrick.....	G. M. Chitwood
Calexico.....	Dr. Wm. F. Smith	Merced.....	Dr. Brett Davis
Chico.....	G. H. Taylor	Mill Valley.....	Capt. M. Staples
Chino.....	Dr. John W. Callnon	Modesto.....	Dr. E. V. Falk
Claremont.....	_____	Montague.....	_____
Cloverdale.....	Dr. Cory C. Ledyard	Mojave.....	A. Smith
Coalinga.....	Dr. H. S. Warren	Monrovia.....	Dr. Abram Hostetter
Colfax.....	_____	Monterey.....	Edward Allen
Colton.....	Dr. L. A. J. La Motte	Morgan Hill.....	Dr. D. W. Watt
Colusa.....	Dr. C. A. Poage	Mountain View.....	Dr. A. H. McFarlane
Compton.....	J. W. Stone	Napa.....	J. D. Treadway
Concord.....	Dr. F. F. Neff	National City.....	Dr. T. F. Johnson
Coram.....	Geo. H. Thomas	Nevada City.....	Hugh Murchie
Corning.....	Dr. O. F. Rudolph	Newman.....	Dr. H. V. Armistead
Corona.....	Dr. W. S. Davis	Newport Beach.....	_____
Coronado.....	Dr. Raffaele Lorini	Oakdale.....	Elmer E. Endicott
Cottonwood.....	Dr. A. B. Gilliland	Oakland.....	Dr. E. N. Ewer
Covina.....	_____	Ocean Side.....	Dr. R. S. Reid
Crescent City.....	_____	Ocean Park.....	Dr. W. M. Kendall
Daly City.....	_____	Ontario.....	Dr. C. S. Orr
Davis.....	Dr. W. E. Bates	Orange.....	Dr. Arthur H. Dorman
Delano.....	Dr. H. Hildreth	Orland.....	Dr. S. Goldman
Dinuba.....	Dr. Wm. Whittington	Oroville.....	Dr. W. F. Gates
Dorris.....	Dr. A. A. Atkinson	Oxnard.....	Dr. Ralph W. Avery
Dixon.....	W. C. Rhem	Pacific Grove.....	Charles E. Tuck
Dunsmuir.....	Dr. W. B. Mason	Palo Alto.....	Hubert O. Jenkins
Eagle Rock.....	Dr. C. H. Phinney	Pasadena.....	Dr. Stanley P. Black
Elsinore.....	Dr. George D. Keeler	Paso Robles.....	H. M. Bayne
Emeryville.....	Dr. A. T. Drennan	Perris.....	A. F. Hardy
Escondido.....	Dr. David Crise	Petaluma.....	Dr. J. M. Proctor
Etna Mills.....	Dr. W. H. Haines	Pinole.....	J. Chattleton
Eureka.....	Dr. L. A. Wing	Pittsburg.....	Dr. F. S. Gregory
Exeter.....	Dr. A. D. McLean	Placerville.....	P. J. Hall
Fairfield.....	Dr. S. G. Bransford	Pleasanton.....	Dr. S. J. Wells
Ferndale.....	Dr. C. A. Phelan	Pomona.....	Dr. T. J. Wilson
Fort Bragg.....	Dr. L. C. Gregory	Porterville.....	Dr. O. C. Higgins
Fort Jones.....	Thos. Bransom	Piedmont.....	Geo. T. Burtchael
Fortuna.....	Dr. Geo. S. Loveren	Point Arena.....	_____
Fowler.....	Dr. W. T. Crawford	Potter Valley.....	_____
Fresno.....	Dr. Geo. H. Aiken	Randsburg.....	E. B. McGinnes
Fullerton.....	Dr. F. J. Gobar	Red Bluff.....	Dr. F. J. Bailey
Gilroy.....	Dr. John A. Clark	Redding.....	L. D. Poole
Glendale.....	Dr. R. E. Chase	Redlands.....	Dr. Chas. E. Ide
Grass Valley.....	Paul E. Sears	Redondo Beach.....	Dr. D. R. Hancock
Gridley.....	Dr. L. L. Thompson	Redwood City.....	Dr. J. L. Ross
Hanford.....	Dr. C. L. Scott	Richmond.....	Dr. Chas. R. Blake
Hayward.....	Dr. F. W. Browning	Rio Vista.....	Dr. A. J. McKinnon
Healdsburg.....	Dr. J. W. Seawell	Riverside.....	Dr. Thos. R. Griffith
Hemet.....	Dr. A. B. Eadie	Rocklin.....	H. D. Fletcher
Hermosa Beach.....	B. F. Brown	Roseville.....	Mabel B. Scott
Hercules.....	Dr. M. L. Fernandez	Ross.....	_____
Hillsborough.....	_____	Sacramento.....	Dr. Wm. K. Lindsay
Hollister.....	Dr. R. G. Curtis	Saint Helena.....	S. H. Pettit
Hollywood.....	E. O. Palmer	Salinas.....	F. A. Abbott
Huntington Beach.....	Dr. G. A. Shank	San Anselmo.....	Dr. Chipman
Huntington Park.....	Dr. W. Thompson	San Bernardno.....	Dr. C. V. McConnico
Imperial.....	Dr. C. E. Standlee	San Diego.....	Dr. F. H. Mead
Inglewood.....	Dr. H. A. Putnam	San Francisco.....	Dr. R. G. Broderick
Jackson.....	George Hambric	Sanger.....	_____
Kennett.....	Dr. J. P. Sandholdt	San Jose.....	Dr. M. F. Hopkins

LIST OF CITY HEALTH OFFICERS—Continued

City.	Health officer	City.	Health officer
San Jacinto.....	Thos. Lloyd	Sonoma.....	
San Juan.....	W. R. Moore	Taft.....	E. G. Wood
San Luis Obispo.....	W. F. Cook	Tehachapi.....	L. M. Denison
San Rafael.....	Dr. W. F. Jones	Tracy.....	Dr. J. G. Murrell
San Mateo.....	Dr. S. G. Goodspeed	Tehama.....	
San Leandro.....	P. C. Du Bois	Tropico.....	Dr. Wm. C. Mabry
Santa Ana.....	Dr. J. I. Clark	Tulare.....	Dr. J. B. Rosson
Santa Barbara.....	Dr. D. A. Conrad	Turlock.....	Dr. F. B. Reardon
Santa Cruz.....	Dr. H. E. Piper	Ukiah.....	Dr. J. Liftchild
Santa Clara.....	Dr. J. F. Beattie	Upland.....	W. C. Redman
Santa Monica.....	Dr. W. H. Parker	Vacaville.....	Dr. W. C. Jenney
Santa Paula.....	Dr. B. E. Murrill	Vallejo.....	Dr. E. A. Peterson
Santa Rosa.....	Dr. Jackson Temple	Venice.....	Dr. W. M. Kendall
Santa Maria.....	Dr. O. P. Paulding	Ventura.....	J. H. Hardey
Sausalito.....	Dr. A. H. Mays	Visalia.....	Dr. A. W. Preston
Sawtelle.....	Dr. A. B. Hromadka	Wasco.....	John P. Nolan
Selma.....	Dr. F. H. Williams	Watsonville.....	Dr. F. H. Koepke
Sierra Madre.....	Dr. R. H. Mackerras	Watts.....	Dr. E. J. Richie
Sebastopol.....	Dr. J. J. Keating	Wheatland.....	Dr. A. W. Foshay
Sisson.....		Whittier.....	Dr. W. H. Stokes
South Pasadena.....	Dr. C. A. Whiting	Willits.....	Dr. W. L. Blodgett
South San Francisco.....	W. P. Acheson	Willows.....	Thos. Kinkade
Stockton.....	Dr. R. T. McGurk	Winters.....	Dr. J. H. Halle
Susanville.....	Dr. E. S. Drucks	Woodland.....	Peter Scott
Sulsun.....		Yreka.....	W. D. Doggett
Stanton.....		Yuba City.....	

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CALIFORNIA STATE BOARD OF HEALTH

MONTHLY BULLETIN

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Published every month at the office of the Board, Sacramento.

Entered as second class matter, August 15, 1905, at the post office at Sacramento, California, under the Act of Congress of July 16, 1894.

Cases Referred to District Attorneys January 4, 1913.

Name of article.	Offense.	Manufacturer or jobber.	Accused dealer.	Locality.
Fresh eggs -----	Mislabeled. Eggs were not fresh-----	-----	H. N. Edlin. Lincoln Market.	San Francisco.
Pork sausage -----	Mislabeled. Contains cereal not declared----- Adulterated. Cereal substituted for pork.	-----	Lincoln Market -----	San Francisco.
Pork sausage -----	Mislabeled. Contains cereal not declared----- Adulterated. Cereal substituted for pork.	-----	Lincoln Market -----	San Francisco.
Chopped meat ----- sausage meat -----	Adulterated. Contains sulphur dioxide----- Mislabeled. Contains cereal not declared----- Adulterated. Cereal substituted for meat.	-----	Saratoga Market ----- Nickel & Brown Bros.-----	San Jose. Napa.
Fresh eastern eggs-----	Mislabeled. Eggs were not fresh-----	Paul Peipers Produce Co. (Guarantors.)	-----	Los Angeles.
Fresh eastern eggs----- Fresh eggs -----	Mislabeled. Eggs were not fresh----- Mislabeled. Eggs were not fresh-----	-----	Mission Grocery ----- Hardy & Westphal-----	Los Angeles. Los Angeles.

LIST OF COUNTY HEALTH OFFICERS.

County.	Health officer.	Address.
Alameda	Dr. C. L. McKown	Niles
Alpine*	County Recorder Frank Smith	Markleeville
Amador	Dr. E. E. Endicott	Jackson
Butte	Dr. L. Q. Thompson	Gridley
Calaveras	Dr. Irwin B. March	San Andreas
Colusa	Dr. C. A. Poage	Colusa
Contra Costa	Dr. W. S. George	Antioch
Del Norte	Dr. E. M. Fine	Crescent City
El Dorado	Dr. L. M. Leisenring	Placerville
Fresno	Dr. G. L. Long	Fresno
Glenn	Dr. J. A. Randolph	Willows
Humboldt	Dr. Carl T. Wallace	Eureka
Imperial	Dr. Virgil McCoombs	El Centro
Inyo	Dr. I. J. Woodin	Independence
Kern	Dr. G. M. Bumgarner	Bakersfield
Kings	Dr. Ralph Motherol	Hanford
Lake	Dr. W. E. Upton	Kelseyville
Lassen	Dr. R. W. T. Garner	Susanville
Los Angeles	Dr. E. O. Sawyer	Los Angeles
Madera	Dr. Mary R. Butin	Madera
Marin	Dr. J. H. Kuser	Novato
Mariposa	Dr. F. L. Wright	Mariposa
Mendocino	Dr. J. Liftchild	Ukiah
Merced	Dr. J. H. Mudd	Merced
Modoc	Dr. John Stille	Alturas
Mono*	Dr. R. A. Cushman	Bridgeport
Monterey	Dr. Garth Parker	Salinas
Napa	Dr. E. G. Smart	Napa
Nevada	Dr. Carl P. Jones	Grass Valley
Orange	Dr. John Wehrly	Santa Ana
Placer	Dr. J. S. Wheeler	Roseville
Plumas	Dr. F. D. Walsh	Quincy
Riverside	Dr. George E. Tucker	Riverside
Sacramento	Dr. Hugh Beattie	Elk Grove
San Benito	Dr. J. M. O'Donnell	Hollister
San Bernardino	Dr. Phillip M. Savage	San Bernardino
San Diego	Dr. O. G. Wicherski	San Diego
San Francisco	Dr. R. G. Brodrick	San Francisco
San Joaquin	Dr. H. C. Peterson	Stockton
San Luis Obispo	Dr. H. M. Cox	San Luis Obispo
San Mateo	Dr. W. G. Beattie	Colma
Santa Barbara	Dr. J. C. Bainbridge	Santa Barbara
Santa Clara	Dr. William Simpson	San Jose
Santa Cruz	Dr. W. H. Keck	Santa Cruz
Shasta	Dr. F. Stabel	Redding
Sierra	Dr. R. B. Davy	Downsville
Slakiyou	Dr. F. J. McNulty	Yreka
Solano	Dr. S. G. Bransford	Suisun
Sonoma	Dr. P. A. Meneray	Santa Rosa
Stanislaus	Dr. F. R. De Lappe	Modesto
Sutter	Dr. E. V. Jacobs	Meridian
Tehama	Dr. W. F. Maggard	Corning
Trinity	Dr. D. B. Fields	Weaverville
Tulare	Dr. W. A. Preston	Visalia
Tuolumne	Dr. Wm. Lyman Hood	Sonora
Ventura	Dr. A. A. Maulhardt	Oxnard
Yolo	Dr. W. J. Blevins	Woodland
Yuba	Dr. J. H. Barr	Marysville

LIST OF CITY HEALTH OFFICERS.

City.	Health officer.	City.	Health officer.
Alameda.....	Dr. A. Hieronymus	Kernville.....	
Albany.....	Dr. Robt. Hector	King City.....	
Alhambra.....	Dr. F. E. Corey	Kingsburg.....	
Alturas.....	Dr. John Stille	Lakeport.....	Jabes Banks
Alviso.....		Larkspur.....	
Anaheim.....	Dr. J. L. Beebe	Lincoln.....	F. R. Elder
Antioch.....	Dr. W. S. George	Lindsay.....	Dr. W. Tourtillot
Arcadia.....		Livermore.....	Dr. H. G. McGill
Arcata.....	Dr. G. W. McKinnon	Lodi.....	Dr. F. W. Colman
Arroyo Grande.....		Long Beach.....	Dr. W. H. Newman
Auburn.....	A. S. Waldo	Lompoc.....	
Asus.....	Dr. John E. Hill	Lordsburg.....	Dr. J. E. Hubble
Bakersfield.....	H. Farris	Los Angeles.....	Dr. L. M. Powers
Belvedere.....	Dr. Florence Scott	Los Banos.....	Dr. J. L. McClelland
Benicia.....	Dr. W. L. McFarland	Los Gatos.....	Dr. C. K. Small
Berkeley.....	Dr. J. J. Benton	Loyalton.....	Dr. G. L. Coates
Biggs.....	Dr. O. C. Hawkins	Madera.....	
Bishop.....	Dr. J. W. Shute	Maricopa.....	Dr. H. N. Taylor
Blue Lake.....	Dr. G. N. Wood	Martinez.....	Dr. E. E. Brown
Brawley.....	Dr. L. L. Lindsey	Marysville.....	Wm. Meek
Burbank.....		Mayfield.....	Dr. F. M. Seibert
Burlingame.....		McCloud.....	Dr. R. T. Legge
Calistoga.....	Dr. Henry Abrons	McKittrick.....	G. M. Chitwood
Calistoga.....	Dr. Wm. F. Smith	Merced.....	Dr. Brett Davis
Chico.....	G. H. Taylor	Mill Valley.....	Capt. M. Staples
Chino.....	Dr. John W. Callison	Modesto.....	Dr. E. V. Falk
Claremont.....		Montague.....	
Cloverdale.....	Dr. Cory C. Ledyard	Mojave.....	A. Smith
Coalinga.....	Dr. H. S. Warren	Monrovia.....	Dr. Abram Hostetter
Colfax.....		Monterey.....	Edward Allen
Colton.....	Dr. L. A. J. La Motte	Morgan Hill.....	Dr. D. W. Watt
Colusa.....	Dr. C. A. Poage	Mountain View.....	Dr. A. H. McFarlane
Compton.....	J. W. Stone	Napa.....	J. D. Treadway
Concord.....	Dr. F. F. Neff	National City.....	Dr. T. F. Johnson
Coram.....	Geo. H. Thomas	Nevada City.....	Hugh Murchie
Cornwall.....	Dr. O. F. Rudolph	Newman.....	Dr. H. V. Armistead
Corona.....	Dr. W. S. Davis	Newport Beach.....	
Coronado.....	Dr. Raffaele Lorini	Oakdale.....	Elmer E. Endicott
Cottonwood.....	Dr. A. B. Gilliland	Oakland.....	Dr. E. N. Ewer
Covina.....		Ocean Side.....	Dr. R. S. Reid
Crescent City.....		Ocean Park.....	Dr. W. M. Kendall
Daly City.....		Ontario.....	Dr. C. S. Orr
Davis.....	Dr. W. E. Bates	Orange.....	Dr. Arthur H. Dorman
Delano.....	Dr. H. Hildreth	Orland.....	Dr. S. Goldman
Dinuba.....	Dr. Wm. Whittington	Oroville.....	Dr. W. F. Gates
Dorris.....	Dr. A. A. Atkinson	Oxnard.....	Dr. Ralph W. Avery
Dixon.....	W. C. Rhem	Pacific Grove.....	Charles E. Tuck
Dunsmuir.....	Dr. W. B. Mason	Palo Alto.....	Hubert O. Jenkins
Eagle Rock.....	Dr. C. H. Phinney	Pasadena.....	Dr. Stanley P. Black
Elizaville.....	Dr. George D. Keeler	Paso Robles.....	H. M. Bayne
Emeryville.....	Dr. A. T. Drennan	Perris.....	A. F. Hardy
Escondido.....	Dr. David Criss	Petaluma.....	Dr. J. M. Proctor
Etna Mills.....	Dr. W. H. Haines	Pinole.....	J. Chattleton
Eureka.....	Dr. L. A. Wing	Pittsburg.....	Dr. F. S. Gregory
Exeter.....	Dr. A. D. McLean	Placerville.....	P. J. Hall
Fairfield.....	Dr. S. G. Bransford	Pleasanton.....	Dr. S. J. Wells
Ferndale.....	Dr. C. A. Phelan	Pomona.....	Dr. T. J. Wilson
Fort Bragg.....	Dr. L. C. Gregory	Porterville.....	Dr. O. C. Higgins
Fort Jones.....	Thos. Bransom	Piedmont.....	Geo. T. Burtchael
Fortuna.....	Dr. Geo. S. Loveren	Point Arena.....	
Fowler.....	Dr. W. T. Crawford	Potter Valley.....	
Fresno.....	Dr. Geo. H. Aiken	Randsburg.....	E. B. McGinness
Fullerton.....	Dr. F. J. Gobar	Red Bluff.....	Dr. F. J. Bailey
Gilroy.....	Dr. John A. Clark	Redding.....	L. D. Poole
Glendale.....	Dr. R. E. Chase	Redlands.....	Dr. Chas. E. Ide
Grass Valley.....	Paul E. Sears	Redondo Beach.....	Dr. D. R. Hancock
Gridley.....	Dr. L. L. Thompson	Redwood City.....	Dr. J. L. Ross
Hanford.....	Dr. C. L. Scott	Richmond.....	Dr. Chas. R. Blake
Hayward.....	Dr. F. W. Browning	Rio Vista.....	Dr. A. J. McKinnon
Healdsburg.....	Dr. J. W. Seawall	Riverside.....	Dr. Thos. R. Griffith
Hemet.....	Dr. A. B. Eadie	Rocklin.....	H. D. Fletcher
Hermosa Beach.....	B. F. Brown	Roseville.....	Mabel B. Scott
Hercules.....	Dr. M. L. Fernandez	Ross.....	
Hillsborough.....		Sacramento.....	Dr. Wm. K. Lindsay
Hollister.....	Dr. R. G. Curtis	Saint Helena.....	S. H. Pettit
Hollywood.....	E. O. Palmer	Salinas.....	F. A. Abbott
Huntington Beach.....	Dr. G. A. Shank	San Anselmo.....	Dr. Chipman
Huntington Park.....	Dr. W. Thompson	San Bernardino.....	Dr. C. V. McConico
Imperial.....	Dr. C. E. Standlee	San Diego.....	Dr. F. H. Mead
Inglewood.....	Dr. H. A. Putnam	San Francisco.....	Dr. R. G. Broderick
Jackson.....	George Hambric	Sanger.....	
Kennett.....	Dr. J. P. Sandholdt	San Jose.....	Dr. M. F. Hopkins

LIST OF CITY HEALTH OFFICERS—Continued

City.	Health officer	City.	Health officer
San Jacinto.....	Thos. Lloyd	Sonoma.....	.....
San Juan.....	W. R. Moore	Taft.....	E. G. Wood
San Luis Obispo.....	W. F. Cook	Tehachapi.....	L. M. Denison
San Rafael.....	Dr. W. F. Jones	Tracy.....	Dr. J. G. Murrell
San Mateo.....	Dr. S. G. Goodspeed	Tehama.....	.....
San Leandro.....	P. C. Du Bois	Tropico.....	Dr. Wm. C. Mabry
Santa Ana.....	Dr. J. I. Clark	Tulare.....	Dr. J. B. Rosson
Santa Barbara.....	Dr. D. A. Conrad	Turlock.....	Dr. F. B. Reardon
Santa Cruz.....	Dr. H. E. Piper	Ukiah.....	Dr. J. Litchfield
Santa Clara.....	Dr. J. F. Beattie	Upland.....	W. C. Redman
Santa Monica.....	Dr. W. H. Parker	Vacaville.....	Dr. W. C. Jenney
Santa Paula.....	Dr. B. E. Murrill	Vallejo.....	Dr. E. A. Peterson
Santa Rosa.....	Dr. Jackson Temple	Venice.....	Dr. W. M. Kendall
Santa Maria.....	Dr. O. P. Paulding	Ventura.....	J. H. Hardey
Sausalito.....	Dr. A. H. Mays	Visalia.....	Dr. A. W. Preston
Sawtelle.....	Dr. A. B. Hromadka	Wasco.....	John P. Nolan
Selma.....	Dr. F. H. Williams	Watsonville.....	Dr. F. H. Koepke
Sierra Madre.....	Dr. R. H. Mackerras	Watts.....	Dr. E. J. Richie
Sebastopol.....	Dr. J. J. Keating	Wheatland.....	Dr. A. W. Foshay
Sisson.....	.....	Whittier.....	Dr. W. H. Stokes
South Pasadena.....	Dr. C. A. Whiting	Willits.....	Dr. W. L. Blodgett
South San Francisco.....	W. P. Acheson	Willows.....	Thos. Kinkade
Stockton.....	Dr. R. T. McGurk	Winters.....	Dr. J. H. Halle
Susanville.....	Dr. E. S. Drucks	Woodland.....	Peter Scott
Suisun.....	.....	Yreka.....	W. D. Doggett
Stanton.....	.....	Yuba City.....	.....

morals, the limit is usually overstepped. The result is the slum and its population of decivilized families. This is the primary problem of town-planning.

Consider the functions of the home. They are, primarily, to shelter parents and children. As to parents, the home must provide housing adequate to the occupation of the breadwinner; it must provide means of storing and cooking food; it must provide facilities for washing clothes and body, for clearing away waste, for maintaining cleanliness; it must leave space for the occupations of leisure, for the treatment of disease, for the growth and education of families. As to children, the home must provide nursing, feeding, cleansing, education. All these the house must make possible; for to be a home is the highest function of a house. The home is the focus of social activities, the headquarters of the functional social unit. The home is the home of the family, and the family needs shelter, food, clothing, education, and medical care.

But the home is not alone the stone walls where our father and mother and brothers and sisters live. Home is there only where a man will wish to turn when his day's work is done; it may be the shelter for wife or child; it may be the birth-place of sister or brother; or again, it may be the hermit's hut on the mountainside, where solitude is the one companionship; or, yet again, it may be the open moorland, where freedom is and where "the wind blows on the heath." And they that live in the ideal may be "citizens of the world"; to them the whole earth is their domain, and one place like any other place fulfils the purpose of humanity.

How does the house of the town worker answer our description? How shall this suite of mean rooms—undecorated, uncleaned, unaired, odorous, crowded, unhand-somely domestic, and dull—how shall this focus of broken interests, and starved ideals, and petty disappointments, and spiritless resignations—how shall this temple of broken gods be a home, a haven to run in for a storm, an altar to weep on in sorrow, a pillar of fire to guide him in the tangle of living? How shall he enter into his chamber in silence for communion with holy things when he can not get beyond the common noises of the day, the squalling of children not his own, the offense of cooking food, or the greater offense of spilled alcohol?

Compare the rural worker and the town worker. The rural worker has his open door; he can walk miles without meeting another like himself; he has fields to roam in, hills to climb, trees to shade himself under, streams that croon to him when he is weary and guide his imagination when he is glad. Compared with the invasive dust and din of the town, his day is a perpetual Sabbath of cleanliness and quiet. But he, too, has his life of the slums; no more than the town dweller has he learned the uses of a house; he oftener keeps it clean, because there is less dirt to invade it; but he as often keeps his windows shut and sleeps in space too little for his dog. With all his advantages of open sky and clean air, the rural worker is not so far in front of the town artisan as the mere living in the country seems to indicate. Often, he is far behind. He suffers from damp houses, badly built, in bad situations. He has difficulty in keeping the soil clean, in removing refuse, in providing for the elementary decencies. All over, given equal physique, he is more vigorous; for he has freer access to the greater goods of light and air, and, which is equally important, he is less exhausted by the routine of his labor and the multitudinous attacks that the town life makes upon the eye and ear.

Consider, too, the worker's wife. She is compelled to be industrious; she has the children for her daily burden. Usually, she makes the children's clothing; she keeps them constant in their school attendance; she assists them at lessons; she reports their illnesses; she trains their characters. I know of no better ethical teacher than a good artisan's wife. She is always in touch with reality. She has manners; she has intelligence; she has foresight; she has ambition. But she often runs under a heavy handicap.

The need of a good home is the driving power behind all the movements for the better housing of the working classes and for the better planning of towns. This is not the place to discuss remedies. But one general danger I may emphasize.

There is a tendency to separate the town-planning movement from the movement for improving individual houses. This tendency is natural, and the influences that create it are easily analyzed. There is the building interest, which looks for more possibilities of renewing its activity as soon as one area is built up. There is the land interest, both owning and speculative, which naturally wants to sell or use land to the best financial purpose. There is the architectural interest, which sees in every new scheme of an extended town fresh opportunities of artistic development. There is the hygienic interest, which welcomes at all hands the spreading of the town over a wider area, if thereby the congestion of the center is relieved. But, with the exception of the hygienic interest, none of these pay special regard to the improving of individual houses. That is not for the moment their point of view. It is, however, the ultimately necessary point of view if the town-planning movement is to result in improved dwellings. The value of the garden city movement lies mainly in this, that it steadily combines the two standpoints—first, the provision of better houses for the individual dweller, and, second, the planning of the town to secure good *æsthetic* effects.

Between the two standpoints there is, or should be, no fundamental antagonism: yet it is unquestionable that the tendency of the town-planner, as such, is to forget that the final test of town planning is not the production of artistic towns, but the improvement of individual housing."

The 1910 census for California showed 1,833,753 out of a total population of 2,377,549 to be men and women over fifteen years of age. Probably 50 per cent of this number were engaged in gainful occupations. Of the men, 495,538 (47.3 per cent), and of the women, 459,167 (58.4 per cent), were married. In 1900, only 17 per cent of homes were owned by tenants less than thirty-five years of age. This means that the great majority of babies spend the golden hours of early childhood in rented dwellings. The incomes of the families in these rented dwellings will average within \$1,000-\$1,500 per year, which means an average sum of \$10-\$15 per month spent for rent, unless other important items of living expense are curtailed. Will this amount of rent secure real homes or only something which the United States recognizes as a "census dwelling?"

Much is written in these days about eugenics and health conservation. Many conditions formerly attributed to heredity have been proved to be due to environment or controllable through proper environment. It is to be hoped that the pioneer effort of several California cities in establishing annual "cleanup" campaigns may grow into the creation of permanent organizations for the promotion of adequate living conditions for all the people.

THE FLY DID IT.

This is the city that Jack built.

This is the Board that ordered the work, that remodeled the city that Jack built.

This is the Club that developed the plan, for ordering the work, that remodeled the city that Jack built.

This is the Committee that collected the facts, to develop the plan, for ordering the work, that remodeled the city that Jack built.

This is the Cleanup Campaign, that started the Committee, that collected the facts, to develop the plan, for ordering the work, that remodeled the city that Jack built.

This is the Fly, that stirred up the Campaign, that started the Committee, that collected the facts, to develop the plan, for ordering the work, that remodeled the city that Jack built.

REPORT OF BUREAU OF ADMINISTRATION FOR FEBRUARY, 1913.

JOHN F. LEINEN, Director.

Division of Sewage Disposal and Water Supplies.

No formal applications for permits for sewage disposal were received by the Board during February.

Throughout the month the Board continued its investigations of the Sacramento sewerage problem and practically completed the field work relating to the determination of the volume of sewage, the water consumption of the city and the character and composition of the sewage from chemical, bacteriological and physical standpoints. The field work was performed by Mr. C. G. Gillespie under the direction of the Consulting Engineer and in co-operation with the City Engineering Department. As soon as the city, through its engineering department, is able to submit the necessary drawings and data desired by the State Board of Health, the Consulting Engineer will begin the preparation of a formal report upon the whole problem of the disposal of the sewage of the city of Sacramento, both from the original incorporated limits and from the newly annexed territory. These two areas have entirely different problems of sewerage but similar problems of treatment and disposal.

On February 10th the Consulting Engineer of the Board visited Stockton and conferred with City Engineer Hunter and Mr. C. E. Grunsky, consulting engineer for the city, relative to the treatment and disposal of the sewage of Stockton.

On February 25th and 26th the Board's Consulting Engineer visited the city of Orange and made a careful investigation of the existing sewerage and sewage disposal works. Serious complaints of odors arising from the septic tanks and lands irrigated with septic sewage had been made by residents of the vicinity to the County Health Officer and through him the matter was referred to the State Board of Health. The city made formal application for a permit for sewage disposal during the month of January. A detailed report with respect to this problem will be prepared in the immediate future.

During February a comprehensive report was prepared by the Consulting Engineer on the existing conditions and possible methods of sewerage and sewage treatment for the town of Dunsmuir, Siskiyou County. This report will be submitted to the Board in March.

During the month considerable correspondence was conducted with respect to the work of the division and data were gathered and shaped preliminary to the preparation of reports on the sewerage and sewage disposal of Chico, Orange, and Placerville.

REPORT OF BUREAU OF VITAL STATISTICS.*

GEORGE D. LESLIE, Director.

State Totals and Annual Rates.—The following table shows for California as a whole the birth, death and marriage totals for the current and preceding months in comparison with those for the corresponding months of last year, as well as the annual rates per 1,000 population represented by the totals for the current and preceding months. The rates are based on an estimated midyear population of 2,671,491 for California in 1913, the estimate having been made by the Census Bureau method with slight modifications.

Birth, Death and Marriage Totals, with Annual Rates per 1,000 Population for Current and Preceding Months for California: January.

Month.	Monthly total.		Annual rate per 1,000 population: 1913.
	1913.	1912.	
January—			
Births	3,503	3,059	15.4
Deaths	3,827	3,216	16.9
Marriages	2,592	2,430	11.4
December—	1912.	1911.	1912.
Births	3,578	3,275	16.4
Deaths	3,581	3,432	16.4
Marriages	3,197	2,652	14.6

The birth, death and marriage totals for January were much greater in 1913 than in 1912.

County Totals.—The first table which follows below shows the monthly birth, death and marriage totals for the principal counties of the State, the list being limited to counties having a population of at least 25,000 according to the Federal Census of 1910. Totals are also shown for San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), as well as for Los Angeles and Orange counties together.

City Totals.—The second of the following tables gives the birth and death totals for the principal freeholders' charter cities, the list including all chartered cities with a census population of at least 15,000 in 1910. Totals are given likewise for San Francisco in comparison with Oakland, Alameda, and Berkeley, the three cities adjoining one another on the east shore of San Francisco Bay, as well as for Los Angeles in comparison with neighboring chartered cities (Long Beach, Pasadena, Pomona, and Santa Monica).

*NOTE.—The present report is for the month preceding, but one. This order must be followed hereafter because of the publication of the Bulletin during the early part of the month, before the tabulation of records for the preceding month is completed.

Birth, Death and Marriage Totals, for Principal Counties: January.

County.	January, 1913.		
	Births.	Deaths.	Marriages.
CALIFORNIA	3,503	3,827	2,592
Counties of more than 25,000 population (1910):			
Alameda	319	387	214
Butte	31	30	17
Contra Costa	47	36	10
Fresno	125	104	85
Humboldt	32	32	23
Kern	57	43	27
Los Angeles	1,033	1,035	619
Marin	24	13	112
Orange	62	46	107
Riverside	51	42	31
Sacramento	148	109	95
San Bernardino	86	122	65
San Diego	88	132	140
San Francisco	574	750	519
San Joaquin	75	103	58
San Mateo	36	25	31
Santa Barbara	26	35	31
Santa Clara	119	166	68
Santa Cruz	32	43	29
Solano	24	32	17
Sonoma	55	69	29
Tulare	64	28	26
Selected groups:			
San Francisco and other bay counties.....	1,000	1,211	886
Los Angeles and Orange counties.....	1,095	1,081	726

Birth and Death Totals, for Principal Cities: January.

City.	January, 1913.	
	Births.	Deaths.
Freeholders' charter cities	2,234	2,479
Cities of more than 15,000 population (1910):		
Berkeley	31	61
Fresno	62	46
Long Beach	35	51
Los Angeles	710	669
Oakland	253	227
Pasadena	47	64
Riverside	32	28
Sacramento	118	95
San Diego	60	101
San Francisco	574	750
San Jose	49	56
Stockton	21	52
Selected groups:		
San Francisco	574	750
Oakland, Alameda and Berkeley.....	304	319
Total, bay cities	878	1,069
Los Angeles	710	669
Neighboring cities	127	148
Total	837	817

Causes of Death.—The following table shows the classification of deaths in California in the current month, in comparison with the preceding month:

Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths for Current and Preceding Month, for California: January.

Cause of death.	Deaths: January.	Proportion per 1,000.	
		January.	December.
ALL CAUSES	3,827	1,000.0	1,000.0
Typhoid fever	22	5.8	9.8
Malarial fever	4	1.1	1.4
Smallpox	8	2.1	0.3
Measles	4	1.1	0.3
Scarlet fever	4	1.0	0.8
Whooping-cough	5	1.3	1.4
Diphtheria and croup	12	3.1	5.9
Influenza	56	14.6	10.1
Other epidemic diseases	12	3.1	3.1
Tuberculosis of lungs	415	108.4	121.2
Tuberculosis of other organs	70	18.3	21.2
Cancer	178	46.5	53.1
Other general diseases	174	45.5	39.1
Meningitis	81	8.1	11.7
Other diseases of nervous system	311	81.3	84.6
Disease of circulatory system	745	194.7	176.2
Pneumonia and broncho-pneumonia	503	131.4	113.6
Other diseases of respiratory system	150	39.2	36.0
Diarrhea and enteritis, under 2 years	44	11.5	18.4
Diarrhea and enteritis, 2 years and over	23	6.0	8.9
Other diseases of digestive system	170	44.4	43.0
Bright's disease and nephritis	235	61.4	61.5
Childbirth	34	8.9	9.5
Diseases of early infancy	128	33.5	36.9
Suicide	74	19.3	18.4
Other violence	229	59.8	70.9
All other causes	186	48.6	42.7

In January there were 745 deaths, or 19.5 per cent of all, from diseases of the circulatory system; 653, or 17.1 per cent, from pneumonia and other diseases of the respiratory system, and 485, or 12.7 per cent, from various forms of tuberculosis. Heart disease and pneumonia both led tuberculosis for this month.

Other notable causes of death were: Diseases of the nervous system, 342; violence, 303; diseases of digestive system, 237; Bright's disease and nephritis, 235; cancer, 178, and epidemic diseases, 127.

The deaths from epidemic diseases were as follows: Influenza, 56; typhoid fever, 22; diphtheria and croup, 12; smallpox, 8, and all other epidemic diseases, 29.

The deaths from the four leading epidemic diseases reported for the months were distributed by counties as follows:

Influenza.	Typhoid fever	Diphtheria and croup.
Alameda	3 Alameda	3 Alameda
Fresno	2 Contra Costa	1 Fresno
Kings	1 Fresno	1 Los Angeles
Los Angeles	30 Imperial	1 Riverside
Madera	1 Kern	2 San Benito
Monterey	1 Los Angeles	4 San Bernardino
Riverside	2 San Bernardino	1 San Francisco
Sacramento	1 San Diego	1 Santa Clara
San Bernardino	2 San Francisco	
San Francisco	1 San Joaquin	
San Joaquin	1 San Luis Obispo	
Santa Clara		
Santa Cruz		
Sonoma		
Tuolumne		
Ventura		
Total	56 Total	22 Total

Smallpox.

Alameda	4
Imperial	4
Total	8

Geographic Divisions.—The following table presents data for geographic divisions, including the metropolitan area, or San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), in comparison with the rural counties of Northern and Central California:

Deaths from Main Classes of Diseases, for Geographic Divisions: January.

Geographic division.	Deaths: January.										
	All causes	Epidemic diseases	Tuberculosis (all forms)	Cancer	Diseases of petrous system	Diseases of circulatory system	Diseases of respiratory system	Diseases of digestive system	Diseases of genitourinary system	Bleeds & diseases and septicæmia	All other causes
THE STATE	3,827	127	485	178	342	745	653	237	235	303	522
Northern California	345	4	33	11	28	76	54	24	19	31	65
Coast counties	180	3	20	8	16	48	25	8	9	16	27
Interior counties	165	1	13	3	12	28	29	16	10	15	38
Central California	2,019	62	237	98	166	444	357	123	111	166	255
San Francisco	750	12	85	49	46	197	119	52	37	75	78
Other bay counties	461	18	43	21	42	106	85	28	29	34	55
Coast counties	269	12	35	8	36	49	52	12	17	16	32
Interior counties	339	20	74	20	42	92	101	31	28	41	90
Southern California	1,463	61	215	60	148	225	242	90	105	106	202
Los Angeles	1,035	44	141	49	102	169	171	68	79	70	142
Other counties	428	17	74	20	46	56	71	22	26	36	60
Northern and Central California	2,364	66	270	109	194	520	411	147	130	197	329
Metropolitan area	1,211	30	128	70	88	303	204	80	66	109	133
Rural counties	1,153	36	142	39	106	217	207	67	64	88	187

Sex and Age Periods.—The proportion of the sexes among the 3,827 decedents in January was: Male, 2,295, or 60.0 per cent; and female, 1,532, or 40.0 per cent

The following table shows the age distribution by numbers and per cents, of deaths classified by sex:

Deaths Classified by Sex and Age Periods, with Per Cents by Age Periods, for California: January.

Age period.	Deaths.			Per cent.		
	Total.	Male.	Female.	Total.	Male.	Female.
ALL AGES	3,827	2,295	1,532	100.0	100.0	100.0
Under 1 year.....	336	192	144	8.8	8.4	9.4
1 to 4 years.....	122	65	57	3.2	2.8	3.7
5 to 14 years.....	76	39	37	2.0	1.7	2.4
15 to 24 years.....	194	114	80	5.1	5.0	5.2
25 to 34 years.....	347	221	126	9.0	9.6	8.2
35 to 44 years.....	350	230	120	9.1	10.0	7.8
45 to 54 years.....	467	301	166	12.2	13.1	10.9
55 to 64 years.....	535	332	203	14.0	14.5	13.3
65 years and over.....	1,400	801	599	36.6	34.9	39.1

This table shows that relatively more females than males died at each age period under 25 years, as well as at 65 years and over, while relatively more men than women died at the intervening age periods from 25 to 64 years.

Occupations.—The table below gives, for deaths 15 years and over, the number of men and women for whom such occupation was reported in contrast with those for whom no gainful occupation was shown.

Deaths, 15 Years and Over, Classified by Sex and Occupation, with Per Cents by Sex, for California: January.

	Deaths.			Per cent male.	Per cent female.
	Total.	Male.	Female.		
15 YEARS AND OVER	3,293	1,999	1,294	60.7	39.3
Occupation reported	1,824	1,702	122	93.3	6.7
No gainful occupation.....	1,469	297	1,172	20.2	79.8

Of the 1,824 decedents for whom occupations were reported the males numbered 1,702, or 93.3 per cent, and the females only 122, or 6.7 per cent.

The following table shows the distribution of male decedents 15 years and over, engaged in the main kinds of occupation:

Deaths of Males Fifteen Years and Over Engaged in Gainful Occupations, Classified by Kinds of Occupation, with Per Cents, for California: January.

Kind of occupation.	Males 15 years and over.	
	Deaths.	Per cent.
ALL OCCUPATIONS	1,702	100.0
Professional	106	6.2
Clerical and official.....	137	8.0
Mercantile and trading.....	150	8.8
Public entertainment	41	2.4
Personal service, police and military.....	52	3.1
Laboring and servant.....	362	21.3
Manufacturing and mechanical industry.....	330	19.4
Agriculture, transportation and other outdoor pursuits.....	515	30.3
All other occupations.....	9	0.5

Of the 1,702 male decedents for whom occupations were reported, 515, or 30.3 per cent, were engaged in agriculture, transportation and other outdoor pursuits; 362, or 21.3 per cent, in laboring and servant work; 330, or 19.4 per cent, in manufacturing and mechanical industry, and altogether 495, or 29.0 per cent, in professional, clerical and official, mercantile and trading, and all other occupations.

It should be noted that the figures on deaths occurring in different occupations are necessarily affected by the fact that in California a large number of men are engaged in agriculture and other outdoor pursuits, while relatively few follow professional and similar occupations which show small numbers of deaths.

REPORT OF THE BUREAU OF THE HYGIENIC LABORATORY FOR FEBRUARY.

WILBUR A. SAWYER, M.D., Director.

Glanders in Man.

A chronic case of glanders in man has recently come under investigation by the laboratory. Glanders bacilli were proved to be present in the ulcers in the patient's mouth. The disease is common in horses and mules and presents a serious problem to owners of horses and to the officials who are working to limit the disease. In man the disease is rare, but, when contracted, it is often fatal and always very serious. The way to protect man from the disease is to prevent it in the horse and mule by meeting every requirement of the officials who are controlling animal diseases. The patient under discussion took care of a group of sick horses which were afterward officially condemned on account of glanders. Owners of horses and mules should realize the importance of investigating suspicious symptoms among their animals so that glanders can not get a foothold and endanger not only the well animals but also the stablemen.

Pasteur Treatment.

Rabies has been very prevalent during the winter months. The demand for the Pasteur preventive treatment in California has broken all previous records. Within the month of February the State Hygienic Laboratory has had under treatment as many as forty-eight persons at one time. The laboratories at which these treatments were administered are given in a table later in this report. Taking the State as a whole the amount of rabies among dogs is increasing.

One child died from the disease in February, three weeks after being bitten in the forehead by a dog which was sick but supposed to have been poisoned. The parents did not suspect rabies and the child was therefore not given the preventive treatment. Examination of the child's brain proved the diagnosis.

Division of Biological Examinations.

Summary of Examinations Made in the California State Hygienic Laboratory During the Month of February, 1913.

Condition suspected.	Positive.	Negative.	Inconclusive.	Total.
Main Laboratory at Berkeley:				
Anthrax		3		3
Diphtheria	56	62	3	121
Gonococcus infection	2	6		8
Hookworm		1		1
Rabies	28			28
Tuberculosis	8	6		14
Typhoid	8	13		16
Water pollution	3	5		8
Miscellaneous	4	10		14
				213
Northern Branch at Sacramento:				
Diphtheria	3	11	1	15
Malaria		2		2
Tuberculosis	1	6		7
Typhoid		1		1
				25
San Joaquin Valley Branch at Fresno:				
Diphtheria	1	6		7
Tuberculosis	1	2		3
Typhoid		1		1
Miscellaneous		1		1
				12
Southern Branch at Los Angeles:				
Diphtheria	15	14	1	30
Typhoid		3		3
				33
Total number of examinations				283

Pastour Treatment for the Prevention of Rabies by the State Hygienic Laboratory During the Month of February, 1913.

	Treatment commenced.	Treatment completed.
Main Laboratory at Berkeley	11	3
Northern Branch at Sacramento	4	7
San Joaquin Valley Branch at Fresno	3	2
Southern Branch at Los Angeles	0	0
Laboratory of Sacramento Board of Health, by deputized bacteriologist	0	2
Laboratory of San Francisco Board of Health, by deputized bacteriologist	15	14
Laboratory of Los Angeles Board of Health, by deputized bacteriologist	2	10
Laboratory of Letterman General Hospital, Presidio, by deputized bacteriologist	0	0
	35	38

Public Health Instruction.

Participation in Instruction in Public Health During February, 1913.

Main Laboratory at Berkeley:	
Bacteriological instruction outfits sent out.....	1
Bacteriological instruction outfits in use.....	21
Lectures or talks by the Director.....	2

Division of Epidemiological Investigations.

Epidemiological Investigations During February, 1913.

Main Laboratory at Berkeley:	
Special investigations by the Director.....	6
Completion of the investigation of a case of human glanders at Hayward.	
Investigation of the typhoid fever situation at Colusa.	
Beginning of investigation of the virulence of diphtheria bacilli isolated from the throats of carriers in Hayward and Berkeley.	
Continuation of the investigation into the methods of spread of poliomyelitis.	
Investigation of a seventh case of human rabies in San Francisco.	
Investigation of a case of meningitis, due to the pneumococcus, at Richmond.	

REPORT OF THE BUREAU OF FOODS AND DRUGS FOR FEBRUARY.

M. E. JAFFA, Director.

About one hundred samples of different foods, food materials, drugs, etc., have been examined by the State Food and Drug Laboratory during the past month.

Quite a number of samples of eggs have been tested in connection with the investigation of the sale of eggs which have been in the incubator. Reliable information has been received at the Laboratory to the effect that certain parties are selling for human consumption, what are called "streaked" eggs. These eggs are those which have started to incubate, but for some reason or other the life has been killed, either from lack of vitality of the egg, or from over-heating, etc. Such eggs should never be used for human consumption under any circumstances, and the sale of such is in direct violation of the California Pure Foods Act of March 11, 1907. All persons selling such eggs will be prosecuted under the provisions of this act.

During the past month the State Laboratory has co-operated with the State Fish and Game Commission in the analyses of sewage and wastes from gas plants, etc.

A considerable number of samples from the different state institutions were received and results of said examination reported to the institutions submitting the samples.

About forty samples of condensed or evaporated milks have been analyzed at the laboratory with the result that no sample has been found to contain a lower percentage of fat than that required by the provisions of Food Inspection Decision 131. In only three cases were the total solids found to be below the requirements, 26.5 of said food inspection decision. Only one sample was found to contain less than 25.5 per cent solids.

This showing is certainly an encouraging one and indicates that the manufacturers are endeavoring to produce milk in accordance with the provisions of the federal and state law.

Any person wishing copies of any of the following Notices of Judgments may obtain same by addressing the Director of the State Laboratory University of California, Berkeley, California:

- No. 1811—Misbranding of Macaroni.
- Nos. 1812, 1830, 1837, 1870, 1874, 1875—Misbranding of Cheese.
- No. 1800—Misbranding of Limburgur Cheese.
- No. 1813—Adulteration and Misbranding of Timothy Hay.
- No. 1814—Misbranding of Mustard.
- No. 1815—Misbranding of So-called Maraschino Cherries.
- No. 1816—Adulteration of Stramonium Leaves.
- No. 1817—Misbranding of Noodles.
- No. 1818—Misbranding of Canned Salmon.
- No. 1861—Adulteration of Fish.
- Nos. 1810, 1808—Misbranding of Olive Oil.
- No. 1821—Misbranding of So-called Olive Oil.
- Nos. 1820, 1838—Adulteration and Misbranding of Tomato Catsup.
- Nos. 1826, 1827, 1872—Adulteration of Tomato Catsup.
- No. 1803—Adulteration and Misbranding of Catsup.
- No. 1864—Adulteration of Catsup.
- No. 1878—Adulteration of Tomato Paste.
- Nos. 1822, 1820, 1831, 1844, 1852—Adulteration and Misbranding of Vinegar.
- No. 1824, 1832—Misbranding of Vinegar.
- Nos. 1884, 1885, 1880, 1800—Misbranding and Alleged Adulteration of Vinegar.
- No. 1871—Misbranding of Raspberry Vinegar.
- No. 1849—Adulteration and Misbranding of So-called Cider Vinegar.
- Nos. 1821, 1833, 1853, 1808—Misbranding of Coffee.
- No. 1825—Adulteration of Prunes.
- No. 1828—Adulteration and Misbranding of So-called Chicory.
- No. 1830—Adulteration and Misbranding of So-called Vanilla Flavor and of So-called Lemon Flavor.
- No. 1876—Adulteration and Misbranding of Orange Flavor.
- No. 1868—Adulteration and Misbranding of Lemon Flavoring Matter.
- No. 1834—Adulteration of Desiccated Eggs.
- No. 1835—Misbranding of Molasses.
- No. 1830—Misbranding of Cocon.
- No. 1840—Misbranding of Sugarota Dairy Feed and Sugarota Swine Feed.
- No. 1841—Misbranding of So-called Cream of Hops.
- No. 1842—Misbranding of So-called Liquid Extract of Smoke.
- No. 1843—Adulteration and Misbranding of Caffein Citrate Tablets, Calomel Tablets, Calomel and Soda Tablets, Damiana Compound Tablets, Nitroglycerine Tablets; Adulteration of Fluid Extract Golden Seal; Adulteration and Misbranding of Wine Coca, Sodium Salicylate Tablets, Strychnine Nitrate Tablets.
- No. 1845—Misbranding of Mineral Water.
- No. 1846—Adulteration and Misbranding of So-called Graham Flour.
- No. 1847—Misbranding of "Coralia Feed."
- No. 1848—Adulteration and Misbranding of Acetanilid Tablets.
- No. 1850—Adulteration and Misbranding of So-called Witch-Hazel.
- No. 1851—Adulteration and Misbranding of Cherry Cordial.
- No. 1877—Adulteration and Misbranding of So-called Peach Cordial and Cherry Cordial.
- Nos. 1854, 1855, 1856, 1857, 1858, 1850, 1860—Adulteration of Cream.
- No. 1865—Misbranding of Condensed Milk.
- No. 1870—Misbranding of Evaporated Milk.
- No. 1892—Adulteration of Milk and Cream.
- Nos. 1802, 1806, 1806—Alleged Misbranding of Cottonseed Meal.
- No. 1860—Misbranding of Mexican Damiana and Damiana Tonic.
- No. 1882—Adulteration and Misbranding of Damiana Elixir.
- No. 1807—Misbranding of So-called Choice Evaporated Ring Apples.
- No. 1894—Adulteration and Misbranding of Evaporated Apples.
- No. 1800—Misbranding of Succotash.
- No. 1873—Misbranding of Syrup.
- No. 1880—Adulteration and Misbranding of So-called Apple Cider.
- No. 1881—Adulteration and Misbranding of Gum Tragacanth and Alleged Adulteration and Misbranding of Alexandria Senna.
- No. 1883—Adulteration of Olives.
- No. 1887—Misbranding of Wine.
- No. 1891—Misbranding of Drug Habit Cure.

REPORT OF BUREAU OF PUBLICATIONS AND HEALTH INFORMATION FOR FEBRUARY, 1913.

GUY P. JONES, Acting Director.

A reprint of the preliminary report of the Tuberculosis Commission, as published in the January Bulletin, is now ready for distribution, free of charge, to all who request that it be sent to them. This report is the basis for a series of bills pertaining to the control of tuberculosis in California which have been introduced in the Legislature during the present session.

A reprint of the description of the ground-squirrel destructor, published in the Bulletin for December, is also ready for the public. This apparatus is of great value in exterminating the rodent and at an extremely low cost. A limited number of these reprints is available and copies may be obtained by making application to this Bureau.

STANDING NOTICES.

The law makes it the duty of every physician and every citizen who knows of the existence of any case of a communicable disease, to report the same to his local health officer.

The law also requires every physician to report any case of a disease due to occupation. A fee of fifty cents is paid for each report.

Reports of births, deaths, and marriages are required of certain persons. Your local health officer, or registrar of vital statistics will explain all the details of the law.

The State Board of Health maintains depositaries for mailing tubes for sending cultures and specimens to its laboratories at Berkeley for examination. Every physician is invited to avail himself of the nearest depositary. A circular of details will be sent upon application.

The California State Board of Health Bulletin is on file in every public library, newspaper office, high school library, and in the offices of county and city health officials. Citizens desiring copies of this issue free of charge should apply to the Secretary, Sacramento.

LIST OF CITY HEALTH OFFICERS.

City.	Health officer.	City.	Health officer.
Alameda	Dr. A. Hieronymus	Kernville	
Albany	Dr. F. R. Woolsey	King City	
Alhambra	Dr. F. E. Corey	Kingsburg	
Alturas	Dr. John Stile	Lakeport	Jabez Banks
Alviso		Larkspur	
Anaheim	Dr. J. L. Beebe	Lincoln	F. R. Elder
Antioch	Dr. W. S. George	Lindsay	Dr. W. W. Tourtillot
Arcadia		Livermore	Dr. H. G. McGill
Arcata	Dr. G. W. McKinnon	Lodi	Dr. F. W. Colman
Arroyo Grande		Long Beach	Dr. W. H. Newman
Auburn	A. S. Waldo	Lompoc	
Azusa	Dr. John E. Hill	Lordsburg	Dr. J. E. Hubble
Bakersfield	H. Farris	Los Angeles	Dr. L. M. Powers
Belvedere	Dr. Florence Scott	Los Banos	Dr. J. L. McClelland
Benicia	Dr. W. L. McFarland	Los Gatos	Dr. C. K. Small
Berkeley	Dr. J. J. Benton	Loyalton	Dr. G. L. Coates
Biggs	Dr. O. C. Hawkins	Madera	
Bishop	Dr. J. W. Shute	Maricopa	Dr. H. N. Taylor
Blue Lake	Dr. G. N. Wood	Martinez	Dr. E. E. Brown
Brawley	Dr. L. L. Lindsey	Marysville	Wm. Meek
Burbank		Mayfield	Dr. F. M. Seibert
Burlingame	J. R. Murphy	McCloud	Dr. R. T. Legge
Callistoga	Dr. Henry Abrons	McKittrick	G. M. Chitwood
Calexico	Dr. Wm. F. Smith	Merced	Dr. Brett Davis
Chico	G. H. Taylor	Mill Valley	Capt. M. Staples
Chino	Dr. John W. Callnon	Modesto	Dr. E. V. Falk
Claremont		Montague	
Cloverdale	Dr. Cory C. Ledyard	Mojave	A. Smith
Coalinga	Dr. H. S. Warren	Monrovia	Dr. Abram Hostetter
Colfax		Monterey	
Colton	Dr. L. A. J. La Motte	Morgan Hill	Dr. D. W. Watt
Colusa	Dr. C. A. Poage	Mountain View	Dr. A. H. McFarlane
Compton	J. W. Stone	Napa	J. D. Treadway
Concord	Dr. F. F. Neff	National City	Dr. T. F. Johnson
Coram	Geo. H. Thomas	Nevada City	Hugh Murchie
Corning	Dr. O. F. Rudolph	Newman	Dr. H. V. Armistead
Corona	Dr. W. S. Davis	Newport Beach	
Coronado	Dr. Raffaele Lorini	Oakdale	Elmer E. Endicott
Cottonwood	Dr. A. B. Gilliland	Oakland	Dr. E. N. Ewer
Covina		Ocean Side	Dr. R. S. Reid
Crescent City		Ocean Park	Dr. W. M. Kendall
Daly City		Ontario	Dr. C. S. Orr
Davis	Dr. W. E. Bates	Orange	Dr. Arthur H. Dorman
Delano	Dr. H. Hildreth	Orland	Dr. S. Goldman
Dinuba	Dr. Wm. Whittington	Oroville	Dr. W. F. Gates
Dorris	Dr. A. A. Atkinson	Oxnard	Dr. Ralph W. Avery
Dixon	W. C. Rhem	Pacific Grove	Charles E. Tuck
Dunsmuir	Dr. W. B. Mason	Palo Alto	Hubert O. Jenkins
Eagle Rock	Dr. C. H. Phinney	Pasadena	Dr. Stanley P. Black
Elsinore	Dr. George D. Keeler	Paso Robles	H. M. Bayne
Emeryville	Dr. A. T. Drennan	Perris	A. F. Hardy
Escondido	Dr. David Crise	Petaluma	Dr. J. M. Proctor
Etna Mills	Dr. W. H. Haines	Pinole	J. Chattleton
Eureka	Dr. L. A. Wing	Pittsburg	Dr. F. S. Gregory
Exeter	Dr. A. D. McLean	Placerville	P. J. Hall
Fairfield	Dr. S. G. Bransford	Pleasanton	Dr. S. J. Wells
Ferndale	Dr. C. A. Phelan	Pomona	Dr. W. H. Holmes
Fort Bragg	Dr. L. C. Gregory	Porterville	Dr. O. C. Higgins
Fort Jones	Thos. Bransom	Piedmont	Geo. T. Burtchael
Fortuna	Dr. Geo. S. Loveren	Point Arena	
Fowler	Dr. W. T. Crawford	Potter Valley	
Fresno	Dr. Geo. H. Aiken	Randsburg	E. B. McGinnes
Fullerton	Dr. F. J. Gobar	Red Bluff	Dr. F. J. Bailey
Gilroy	Dr. John A. Clark	Redding	L. D. Poole
Glendale	Dr. R. E. Chase	Redlands	Dr. Chas. E. Ide
Grass Valley	Paul E. Sears	Redondo Beach	Dr. D. R. Hancock
Gridley	Dr. L. L. Thompson	Redwood City	Dr. J. L. Ross
Hanford	Dr. C. L. Scott	Richmond	Dr. Chas. R. Blake
Hayward	Dr. F. W. Browning	Rio Vista	Dr. A. J. McKinnon
Healdsburg	Dr. J. W. Seawell	Riverside	Dr. Thos. R. Griffith
Hemet	Dr. A. B. Eadie	Rocklin	H. D. Fletcher
Hermosa Beach	B. F. Brown	Roseville	Mabel B. Scott
Hercules	Dr. M. L. Fernandez	Ross	
Hillsborough		Sacramento	Dr. Wm. K. Lindsay
Hollister	Dr. R. G. Curtis	Saint Helena	S. H. Pettit
Hollywood	E. O. Palmer	Salinas	F. A. Abbott
Huntington Beach	Dr. G. A. Shank	San Anselmo	Dr. Chipman
Huntington Park	Dr. W. Thompson	San Bernardino	Dr. C. V. McConnico
Imperial	Dr. C. E. Standlee	San Diego	Dr. F. H. Mead
Inglewood	Dr. H. A. Putnam	San Francisco	Dr. R. G. Broderick
Jackson	George Hambric	Sanger	
Kennett	Dr. J. P. Sandholdt	San Jose	Dr. M. F. Hopkins

LIST OF CITY HEALTH OFFICERS—Continued

City.	Health officer	City.	Health officer
San Jacinto	Thos. Lloyd	Sonoma	
San Juan	W. R. Moore	Taft	E. G. Wood
San Luis Obispo	W. F. Cook	Tehachapi	L. M. Denison
San Rafael	Dr. W. F. Jones	Tracy	Dr. J. G. Murrell
San Mateo	Dr. S. G. Goodspeed	Tehama	
San Leandro	P. C. Du Bois	Tropico	Dr. Wm. C. Mabry
Santa Ana	Dr. J. I. Clark	Tulare	Dr. J. B. Rosson
Santa Barbara	Dr. D. A. Conrad	Turlock	Dr. F. B. Reardon
Santa Cruz	Dr. H. E. Piper	Ukiah	Dr. J. Litchfield
Santa Clara	Dr. J. F. Beattie	Upland	Dr. W. C. Rodman
Santa Monica	Dr. W. H. Parker	Vacaville	Dr. W. C. Jenney
Santa Paula	Dr. B. E. Murrill	Vallejo	Dr. E. A. Peterson
Santa Rosa	Dr. Jackson Temple	Venice	Dr. W. M. Kendall
Santa Maria	Dr. O. P. Paulding	Ventura	J. H. Hardey
Sausalito	Dr. A. H. Mays	Visalia	Dr. A. W. Preston
Sawtelle	Dr. A. B. Hromadka	Wasco	John P. Nolan
Selma	Dr. F. H. Williams	Watsonville	Dr. F. H. Koepke
Sierra Madre	Dr. R. H. Mackerras	Watts	Dr. E. J. Richie
Sebastopol	Dr. J. J. Keating	Wheatland	Dr. A. W. Fosahy
Sharon		Whittier	Dr. W. H. Stokes
South Pasadena	Dr. C. A. Whitting	Willits	Dr. W. L. Blodgett
South San Francisco	W. P. Acheson	Willows	Thos. Kinkade
Stockton	Dr. Hudson Smythe	Winters	Dr. J. H. Haile
Susanville	Dr. E. S. Drucks	Woodland	Peter Scott
Suisun		Yreka	W. D. Doggett
Stanton		Yuba City	

LIST OF COUNTY HEALTH OFFICERS.

County.	Health officer	Address.
Alameda	Dr. C. L. McKown	Niles
Alpine	County Recorder Frank Smith	Markleeville
Amador	Dr. E. E. Endicott	Jackson
Butte	Dr. L. Q. Thompson	Gridley
Calaveras	Dr. Irwin B. March	San Andreas
Colusa	Dr. C. A. Poage	Colusa
Contra Costa	Dr. W. S. George	Antioch
Del Norte	Dr. E. M. Fine	Crescent City
El Dorado	Dr. L. M. Lelsanring	Placerville
Fresno	Dr. G. L. Long	Fresno
Glenn	Dr. J. A. Randolph	Willows
Humboldt	Dr. Carl T. Wallace	Eureka
Imperial	Dr. Virgil McCoombs	El Centro
Inyo	Dr. I. J. Woodin	Independence
Kern	Dr. G. M. Bumgarner	Bakersfield
Kings	Dr. Ralph Motherol	Hanford
Lake	Dr. W. E. Cinton	Kelseyville
Lassen	Dr. R. W. T. Garner	Susanville
Los Angeles	Dr. E. O. Sawyer	Los Angeles
Madera	Dr. Mary R. Butin	Madera
Martin	Dr. J. H. Kuser	Novato
Mariposa	Dr. F. W. Gallion	Mariposa
Mendocino	Dr. J. Litchfield	Ukiah
Merced	Dr. J. H. Mudd	Merced
Modoc	Dr. John Stile	Alturas
Mono	Dr. R. A. Cushman	Bridgeport
Monterey	Dr. Garth Parker	Salinas
Napa	Dr. E. G. Smart	Napa
Nevada	Dr. Carl P. Jones	Grass Valley
Orange	Dr. John Wehrly	Santa Ana
Placer	Dr. J. S. Wheeler	Roseville
Plumas	Dr. F. D. Walsh	Quincy
Riverdale	Dr. George E. Tucker	Riverdale
Sacramento	Dr. Hugh Beattie	Elk Grove
San Benito	Dr. J. M. O'Donnell	Hollister
San Bernardino	Dr. Philip M. Savage	San Bernardino
San Diego	Dr. O. G. Wicherski	San Diego
San Francisco	Dr. R. G. Brodrick	San Francisco
San Joaquin	Dr. H. C. Peterson	Stockton
San Luis Obispo	Dr. H. M. Cox	San Luis Obispo
San Mateo	Dr. W. G. Beattie	Colma
Santa Barbara	Dr. J. C. Bainbridge	Santa Barbara
Santa Clara	Dr. William Simpson	San Jose
Santa Cruz	Dr. W. H. Keck	Santa Cruz
Shasta	Dr. F. Stabel	Redding
Sierra	Dr. R. E. Davy	Downsville
Siakiyou	Dr. F. J. McNulty	Yreka
Solano	Dr. S. G. Bransford	Suisun
Sonoma	Dr. P. A. Meneray	Santa Rosa
Stanislaus	Dr. J. L. Hennemouth	Modesto
Sutter	Dr. E. V. Jacobs	Meridian
Tehama	Dr. W. F. Maggard	Corning
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CALIFORNIA STATE BOARD OF HEALTH

MONTHLY BULLETIN

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THE CALIFORNIA STATE BOARD OF HEALTH

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REGULAR MEETINGS.

The meetings of the California State Board of Health are held regularly the first Saturday of each month, but the quarterly meetings required by law to be held at the Capitol of the State are ordinarily designated as January, April, July, and October.

By courtesy of the University of California the Food and Drug Laboratory and the Hygienic Laboratory are located in University buildings at Berkeley, California.

Address all communications to the

SECRETARY, Sacramento, California.

APRIL BULLETIN.

COMMENTS.

Human Disease Carriers.

History is filled with evidence that at times entire communities have believed in witchcraft or ghosts, but today most of us profess not to believe in either. And history, furthermore, is filled with the records of methods of doing things which were inconceivably crude or were based upon false theories. The history of medicine is no exception. It has its crude methods and its false theories, and even its ghosts and witches. But medicine is young—modern medicine is really much younger than the oldest inhabitant. In fact, modern medicine is about the age of the average successful young business man, about thirty-five; and preventive medicine is not yet of age. The triple alliance between medicine, engineering, and social science is scarcely ten years old. It is to be expected that the application of these three sciences to the prevention or control of disease will undergo rapid and extensive changes from year to year.

Some of the public health practices that require thorough investigation and reorganization are those connected with quarantine and disinfection. The discovery of the role of the mosquito in the transmission of yellow fever and malaria, little more than ten years ago, has revolutionized the public health procedure in dealing with these diseases. The discovery of the similar role of certain persons apparently well, but carrying disease “germs” about in their throats or alimentary canals or other parts of the body, promises to greatly modify and otherwise to change the procedure in preventing the spread of other diseases. Diphtheria is known to be frequently spread through the agency of such human “diphtheria” carriers. Typhoid fever has been proved by many very striking instances to be frequently spread by human typhoid carriers. It is probable that carriers play an important part in the dissemination of scarlet fever. Epidemic spinal meningitis suggests the probability of human carriers as an important factor in its spread, and until recently the general evidence favored this method of spread for poliomyelitis (infantile paralysis). During the present month, Director Sawyer has been investigating a case of human glanders that promises to become a public health problem of this character.

Strictly scientific usage would probably not include victims of leprosy, malaria or syphilis among the human “carriers” of disease; but administratively, these individuals, like recognized “carriers” go about the community carrying with them a disease which is communicable to others. Syphilis and gonococcus infections have long been known to be dependent largely upon this type of human carrier for transmission. Leprosy, likewise, furnishes little evidence of being able to reach new victims except through the close continued association of a leper with other persons. Malaria is another disease, whose victims should be considered for administrative purposes, to be human carriers of disease.

All of us in a measure are human disease carriers. That is to say,

there are living in our noses and throats, on our skins and in other parts of the body, many varieties of disease producing organisms. Most of these "germs" are not very powerful enemies, and can easily be dislodged at the outset from any point of vantage they may obtain. The organisms that cause head colds and those that cause pimples, boils and local abscesses are among these; also the organisms causing blood poisoning, but the latter seldom get past the outer defenses of the lymphatic system of the body. Among the frequent temporary "germ" residents of the body are the organisms causing pneumonia, and tuberculosis. Most organisms of these classes are opportunists, they do not find it easy to gain an entrance to the human body, but when they do and the preliminary battles go their way, they become numbered among the most dangerous enemies of mankind.

Every one understands about the schoolboy who is the carrier of head-lice. Such a boy is not ill, yet he is distinctly a carrier of a parasite which readily transfers itself to the heads of other children. Both teachers and parents understand the necessity for sending this boy home from school and preventing contact between him and others until his head has been properly treated. This is an imperfect illustration of the meaning of human disease carriers, and of the reasons for carefully examining, and of restricting the liberties of some persons who themselves are practically well.

* * * * *

The "Fever Ship."

In March, 1912, Director Sawyer reported to the Board upon a remarkable recurrence of typhoid fever on a ship, which had covered a period of more than three years. Briefly stated, a series of nearly thirty persons (members of the crew of this ship at the time they were taken ill) suffering from typhoid fever had been taken from a certain ship. Several deaths had occurred, and the frequent intervals at which these men were removed so impressed the sailors that it became difficult to maintain a full crew. The ship became known as the "fever ship."

Every source of infection outside the ship was eliminated, and finally it was decided to begin with the captain and go through the entire crew in a microscopical search for a "typhoid carrier." This laborious task was rewarded by the discovery of one seaman, the winch driver—the ship was a lumber vessel engaged in coastwise trade—who was a carrier. This man was removed from the ship and placed in quarantine. Through the co-operation of the United States Public Health Service he was kept under observation and treatment in the San Francisco Marine Hospital for nearly six months—not treatment and observation to benefit him, for he was already well physically, but treatment to render him no longer a source of danger to the public.

At the end of this period it seemed justifiable on the basis of these observations to release him on condition that he report every two weeks. Within two months after his release three more persons developed typhoid fever on another vessel upon which he shipped as a seaman. One of this number died. Investigation showed on this ship the same conditions of a common water barrel and common cup, believed to have been the chief source of this typhoid-carrier's transfer of his disease to the first series of victims. He was again returned

to quarantine and other measures which science has suggested are being tried in an effort to eradicate the typhoid bacilli from their residence in his alimentary tract. No cases of typhoid fever have originated among the crews of either vessel since his removal.

The fine quality of citizenship which has been displayed by this man throughout the past year of quarantine-imprisonment can not be too highly praised. Here is a man who five or six years ago contracted typhoid fever and paid the cost in illness and who subsequently, through no fault of his own, has become a menace to the health of the general public. Had his occupation been on land, and one which caused him to shift from town to town, it is probable he would never have been detected under the imperfect administrative health organization our cities and counties maintain. Our records would only have shown a steadily lengthening series of "sporadic" cases of typhoid fever which no one could explain. Instead of the thirty-one known cases and five deaths caused by this man we might have actually had many times this number of unknown cases due to him.

The human disease "carrier" presents many new and difficult problems to the health departments. This typhoid carrier illustrates some of these problems. Shall this man be permanently quarantined unless methods can be devised for rendering him no longer dangerous to the public health? The public demands that this be done in the control of leprosy; it hesitates to require any measures in this direction in the control of tuberculosis; it refuses thus far to seriously consider adequate measures of any kind in the control of syphilis. What will be the public verdict in cases of typhoid-carriers?

* * * * *

The Malaria Carrier.

There are a few diseases in California in which a human carrier is one essential factor, but in which a second factor is equally important. Malaria is one of these. Without the human body as an incubator, or rather reservoir for the malaria parasites, this disease would become extinct, but without the assistance of a certain species of mosquito these parasites could not transfer themselves from the blood of a malaria patient to the blood of any other human being. In other words, a person suffering from malaria is in a certain sense a disease carrier; but is not dangerous to the public health unless he lives in a community where there are *Anopheles* mosquitoes. Obviously the first effort in controlling this disease should be to kill the mosquitoes of this species and to screen all the people from those that escape destruction. But in districts where mosquito eradication can not be carried out properly, and where a great many *Anopheles* mosquitoes exist, the question arises: Shall those persons having malaria (malaria carriers) be required to observe special precautions against being bitten by mosquitoes, while every effort is made to treat their illness? (This to be done not primarily on account of the patients' welfare, but in order to protect the uninfected people of the community from contracting this disease.)

**Three Lepers and
Our Food Supply.**

During the past year or so three lepers have been reported to the State Board of Health that suggest another phase of this subject of the control of human disease carriers. One of these was a groceryman doing a good business in a busy city. This groceryman was an Italian, middle aged, a man of family. He did not suspect the nature of his illness until he applied to a life insurance company for examination for insurance. This examination disclosed his condition and it was reported as required by law. The second case is also a man above forty with a wife and children. He had been a volunteer American soldier serving in the Philippines during the war with Spain. The nature of his illness was discovered through an examination for his admission to the Soldiers' Home. Prior to this discovery he had been employed in various positions, among them being the driver of a delivery wagon, which brought him in contact with many people and with food products. The third case is that of a Chinese gardener, who drove his own vegetable wagon part of the time.

Each of these unfortunate men is in a sense a leprosy carrier and went about the community carrying with him a disease which is communicable to others. Administratively he presents a problem similar to that of the typhoid-carrier or the diphtheria-carrier, *i. e.*, he is an individual who should be kept from close contact with the public for their protection rather than his own, and at least when first discovered is frequently an individual who has the promise of years before his disease seriously impairs his physical or mental activity.

Public sentiment approves the practical life imprisonment of lepers, but has thus far not been concerned with the problem of providing adequate facilities for their proper care. It is right and proper for society to protect itself from the criminal and the insane by taking away their liberty, and society is recognizing its obligation to give these individuals every needed attention and care during their periods of segregation. Similarly society will in time come to realize that the human carrier of a disease which can not be controlled in any other way than by temporary or permanent segregation, must be dealt with not only justly but generously. And society should realize another thing, *i. e.*, it will pay to invest money and time in patient investigation of new methods of control and ultimate eradication of all communicable diseases.

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REPORT OF BUREAU OF ADMINISTRATION FOR MARCH, 1913.

JOHN F. LEINEN, Director.

Division of Sewage Disposal and Water Supplies.

During March a revised application for a permit for sewage disposal was received by the Board from the town of Los Gatos.

The field data relating to the Sacramento sewerage and sewage disposal problem, gathered by Mr. C. G. Gillespie, special assistant engineer under the direction of the Board's Consulting Engineer, during December, 1912, and January and February, 1913, were completely worked up and suitably arranged for a formal report on this matter. This report will be prepared as soon as certain drawings and additional data are furnished from the office of the city engineer. Mr. Gillespie prepared during the month a valuable report on the methods adopted for the field studies, many of which were extremely novel and interesting.

On March 6th and 10th the Consulting Engineer of the Board held conferences with Mr. C. E. Grunsky, consulting engineer for the city of Stockton, relative to the sewage disposal of that city.

A comprehensive report on the sewerage and sewage disposal problem of the town of Dunsmuir was submitted to the Board for action, and work was begun upon the preparation of exhaustive reports on the sewerage and sewage disposal problems of the cities of Orange and Placerville.

During March the Board's Consulting Engineer conducted considerable miscellaneous correspondence and prepared arguments to be employed at Clovis in a campaign for the voting of bonds to construct water and sewerage works and a sewage disposal plant. A special canvass was conducted by letter among complainants of nuisances alleged to have been caused by the sewage disposal area of the city of Orange.

REPORT OF BUREAU OF VITAL STATISTICS.*

GEORGE D. LESLIE, Director.

State Totals and Annual Rates.—The following table shows for California as a whole the birth, death and marriage totals for the current and preceding months in comparison with those for the corresponding months of last year, as well as the annual rates per 1,000 population represented by the totals for the current and preceding months. The rates are based on an estimated midyear population of 2,671,491 for California in 1913, the estimate having been made by the Census Bureau method with slight modifications.

Birth, Death and Marriage Totals, with Annual Rates per 1,000 Population for Current and Preceding Months for California: February.

Month.	Monthly total.		Annual rate per 1,000 population: 1913.
	1913.	1912.	
February—			
Births -----	3,270	3,062	16.0
Deaths -----	3,254	3,080	15.9
Marriages -----	2,040	2,184	10.0
January—			
Births -----	3,503	3,059	15.4
Deaths -----	3,827	3,216	16.9
Marriages -----	2,592	2,430	11.4

The birth and death totals in February were much greater this year than last year, though the marriage total was somewhat less in 1913 than in 1912.

County Totals.—The first table which follows below shows the monthly birth, death and marriage totals for the principal counties of the State, the list being limited to counties having a population of at least 25,000 according to the Federal Census of 1910. Totals are also shown for San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), as well as for Los Angeles and Orange counties together.

City Totals.—The second of the following tables gives the birth and death totals for the principal freeholders' charter cities, the list including all chartered cities with a census population of at least 15,000 in 1910. Totals are given likewise for San Francisco in comparison with Oakland, Alameda, and Berkeley, the three cities adjoining one another on the east shore of San Francisco Bay, as well as for Los Angeles in comparison with neighboring chartered cities (Long Beach, Pasadena, Pomona, and Santa Monica).

*NOTE.—The present report is for the month preceding, but one. This order must be followed hereafter because of the publication of the Bulletin during the early part of the month, before the tabulation of records for the preceding month is completed.

Birth, Death and Marriage Totals, for Principal Counties: February.

County.	February, 1913.		
	Births.	Deaths.	Marriages.
California	3,270	3,254	2,040
Counties of more than 25,000 population (1910):			
Alameda	313	294	198
Butte	49	21	18
Contra Costa	34	31	17
Fresno	127	84	57
Humboldt	31	26	11
Kern	46	42	28
Los Angeles	931	878	483
Marin	10	23	85
Orange	72	46	77
Riverside	38	37	37
Sacramento	108	108	81
San Bernardino	91	88	40
San Diego	98	111	88
San Francisco	595	564	424
San Joaquin	57	79	41
San Mateo	51	25	23
Santa Barbara	16	39	26
Santa Clara	86	133	63
Santa Cruz	34	32	10
Solano	29	30	7
Sonoma	41	59	25
Tulare	39	32	27
Selected groups:			
San Francisco and other bay counties.....	1,003	937	747
Los Angeles and Orange counties.....	1,003	924	560

Birth and Death Totals, for Principal Cities: February.

City.	February, 1913.	
	Births.	Deaths.
Freeholders' charter cities.....	2,081	2,024
Cities of more than 15,000 population (1910):		
Alameda	21	20
Berkeley	37	37
Fresno	51	39
Long Beach	33	48
Los Angeles	674	572
Oakland	213	188
Pasadena	48	46
Riverside	20	21
Sacramento	99	98
San Diego	79	80
San Francisco	595	564
San Jose	35	37
Stockton	16	38
Selected groups:		
San Francisco	595	564
Oakland, Alameda and Berkeley.....	271	245
Totals, bay cities.....	866	809
Los Angeles	674	572
Neighboring cities	95	124
Totals	769	696

Causes of Death.—The following table shows the classification of deaths in California for the current month, in comparison with the preceding month:

Deaths from Certain Principal Causes with Proportion per 1,000 Total Deaths for Current and Preceding Month, for California: February.

Cause of death.	Deaths:	Proportion per 1,000.	
		February.	January.
ALL CAUSES.....	3,254	1,000.0	1,000.0
Typhoid fever	23	7.1	5.8
Malarial fever	3	0.9	1.1
Smallpox	1	0.3	2.1
Measles	8	2.5	1.1
Scarlet fever	6	1.8	1.0
Whooping-cough	12	3.7	1.3
Diphtheria and croup.....	7	2.2	3.1
Influenza	43	13.2	14.6
Other epidemic diseases	21	6.5	3.1
Tuberculosis of lungs.....	411	126.3	108.4
Tuberculosis of other organs.....	67	20.6	18.3
Cancer	202	62.1	46.5
Other general diseases.....	126	38.7	45.5
Meningitis	50	15.4	8.1
Other diseases of nervous system.....	290	89.1	81.3
Diseases of circulatory system.....	556	170.9	194.7
Pneumonia and broncho-pneumonia.....	359	110.3	131.4
Other diseases of respiratory system.....	81	24.9	39.2
Diarrhea and enteritis, under 2 years.....	44	13.5	11.5
Diarrhea and enteritis, 2 years and over.....	18	5.5	6.0
Other diseases of digestive system.....	155	47.6	44.4
Bright's disease and nephritis.....	222	68.2	61.4
Childbirth	32	9.8	8.9
Diseases of early infancy.....	99	30.4	33.5
Suicide	66	20.3	19.3
Other violence	202	62.1	59.8
All other causes.....	150	46.1	48.6

In February there were 556 deaths, or 17.1 per cent of all, from diseases of the circulatory system, and 478, or 14.7 per cent, from various forms of tuberculosis. Heart disease thus led tuberculosis greatly, as for some months past.

Other notable causes of death were: Diseases of the respiratory system, 440; diseases of nervous system, 340; violence, 268; Bright's disease and nephritis, 222; diseases of digestive system, 217; cancer, 202; and epidemic diseases, 124.

The deaths from epidemic diseases were as follows: Influenza, 43; typhoid fever, 23; whooping cough, 12; measles, 8; diphtheria and croup, 7; scarlet fever, 6; and all other epidemic diseases, 25.

The deaths from the three leading epidemic diseases reported for the month were distributed by counties as follows:

Influenza.	Typhoid fever.	Whooping-cough.
Alameda	Alameda	Los Angeles
Amador	Fresno	Napa
Butte	Kern	Orange
Fresno	Los Angeles	San Bernardino
Imperial	Napa	San Francisco
Lake	Orange	Santa Barbara
Los Angeles	Sacramento	Santa Clara
Monterey	San Bernardino	Stanislaus
Orange	San Francisco	
Riverside	San Luis Obispo	
Sacramento	Santa Clara	
San Diego	Tehama	
San Francisco	Yolo	
San Mateo		
Santa Clara		
Sonoma		
Stanislaus		
Yolo		
Yuba		
Total	Total	Total

Geographic Divisions.—The following table presents data for geographic divisions, including the metropolitan area, or San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), in comparison with the rural counties of Northern and Central California.

Deaths from Main Classes of Diseases from Geographic Divisions: February.

Geographic division.	Deaths: February.									
	All causes.	Epidemic diseases.	Tuberculosis (all forms).	Cancer.	Diseases of nervous system.	Diseases of circulatory system.	Diseases of respiratory system.	Diseases of digestive system.	Infectious diseases not specified.	All other causes.
THE STATE	3,254	124	478	202	340	556	440	217	222	268
Northern California	342	10	55	16	41	60	43	23	18	29
Coast counties	198	7	33	8	26	41	27	13	8	13
Interior counties	144	3	22	8	15	19	16	10	10	16
Central California	1,673	61	196	111	157	311	241	115	116	152
San Francisco	564	11	67	45	49	123	75	42	43	53
Other bay counties	373	11	39	23	36	72	57	18	27	40
Coast counties	211	11	25	10	26	42	30	14	14	9
Interior counties	525	28	64	28	46	74	79	41	33	50
Southern California	1,239	53	228	75	142	185	156	79	88	87
Los Angeles	878	32	160	59	99	144	111	57	65	61
Other counties	361	21	68	16	43	41	45	22	23	26
Northern and Central California	2,015	71	250	127	198	371	294	138	134	181
Metropolitan area	987	22	106	73	85	195	132	60	70	93
Rural counties	1,078	49	144	54	113	176	152	78	64	88

Sex and Age Periods.—The proportion of the sexes among the 3,254 decedents in February was: Male, 2,033, or 62.5 per cent; and female, 1,221, or 37.5 per cent.

The following table shows the age distribution by numbers and per cents, of deaths classified by sex:

Deaths Classified by Sex and Age Periods, with Per Cents by Age Periods, for California: February.

Age period.	Deaths.			Per cent.		
	Total.	Male.	Female.	Total.	Male.	Female.
ALL AGES.....	3,254	2,033	1,221	100.0	100.0	100.0
Under 1 year.....	318	179	139	9.8	8.8	11.4
1 to 4 years.....	105	61	44	3.2	3.0	3.6
5 to 14 years.....	84	48	36	2.6	2.3	2.9
15 to 24 years.....	214	124	90	6.6	6.1	7.4
25 to 34 years.....	313	193	120	9.6	9.5	9.8
35 to 44 years.....	345	224	121	10.6	11.0	9.9
45 to 54 years.....	411	266	145	12.6	13.1	11.9
55 to 64 years.....	443	290	153	13.6	14.3	12.5
65 years and over.....	1,021	648	373	31.4	31.9	30.6

This table shows that relatively more females than males died at the age periods under 35 years as well as at 65 years and over, while relatively more males than females died at the age periods from 35 to 64 years.

Occupations.—The table below gives, for deaths 15 years and over, the number of men and women for whom such occupation was reported in contrast with those for whom no gainful occupation was shown.

Deaths, Fifteen Years and Over, Classified by Sex and Occupation, with Per Cents by Sex, for California: February.

	Deaths.			Per cent male.	Per cent female.
	Total.	Male.	Female.		
15 YEARS AND OVER.....	2,747	1,745	1,002	63.5	36.5
Occupation reported	1,555	1,459	96	93.8	6.2
No gainful occupation.....	1,192	286	906	24.0	76.0

Of the 1,555 decedents for whom occupations were reported the males numbered 1,459, or 93.8 per cent, and the females only 96, or 6.2 per cent.

The following table shows the distribution of male decedents 15 years and over, engaged in the main kinds of occupation.

Deaths of Males Fifteen Years and Over Engaged in Gainful Occupations, Classified by Kind of Occupation, with Per Cents, for California: February.

Kind of occupation.	Males 15 years and over.	
	Deaths.	Per cent.
ALL OCCUPATIONS.....	1,459	100.0
Professional	87	6.0
Clerical and official.....	107	7.3
Mercantile and trading.....	120	8.2
Public entertainment	42	2.9
Personal service, police and military.....	54	3.7
Laboring and servant.....	296	20.3
Manufacturing and mechanical industry.....	297	20.4
Agriculture, transportation and other outdoor pursuits....	448	30.7
All other occupations.....	8	0.5

Of the 1,459 male decedents for whom occupations were reported, 448, or 30.7 per cent, were engaged in agriculture, transportation, and other outdoor pursuits; 297, or 20.4 per cent, in manufacturing and mechanical industry; 296, or 20.3 per cent, in laboring and servant work; and altogether 418, or 28.6 per cent, in professional, clerical and official, mercantile and trading, and all other occupations.

It should be noted that the figures on deaths occurring in different occupations are necessarily affected by the fact that in California a large number of men are engaged in agriculture and other outdoor pursuits, while relatively few follow professional and similar occupations, which show small numbers of deaths.

REPORT OF THE BUREAU OF THE HYGIENIC LABORATORY FOR MARCH.

WILBUR A. SAWYER, M.D., Director.

The laboratory is proving of service to an ever increasing number of the communities of our State. During the month of March, 260 specimens were examined for 118 physicians and veterinarians in 80 cities and towns situated in 33 counties. There are still many communities which have not yet learned to improve their health conditions by taking advantage of the laboratory tests furnished by the State. The counties from which specimens were sent in March are the following: Alameda, Amador, Butte, Colusa, Contra Costa, Fresno, Humboldt, Kern, Kings, Los Angeles, Madera, Marin, Mendocino, Merced, Napa, Nevada, Orange, Placer, Riverside, Sacramento, San Bernardino, San Francisco, San Joaquin, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, Shasta, Siskiyou, Solano, Stanislaus, Tulare, Yuba.

Division of Biological Examinations.

Summary of Examinations made in the California State Hygienic Laboratory during the month of March, 1913.

Condition suspected.	Positive.	Negative.	Inconclusive.	Total.
Main Laboratory at Berkeley:				
Anthrax -----		2		2
Diphtheria -----	38	31	1	70
Gonococcus infection -----	6	14		20
Hookworm -----		1		1
Malaria -----		1		1
Rabies -----	33	2	1	36
Tuberculosis -----	6	14		20
Typhoid -----	4	14		18
Water pollution -----	3	8		11
Miscellaneous -----	1	4		5
				184
Northern Branch at Sacramento:				
Diphtheria -----	6	12	2	20
Malaria -----	1	3		4
Tuberculosis -----		6		6
Typhoid -----		2		2
				32
San Joaquin Valley Branch at Fresno:				
Diphtheria -----	3	11		14
Tuberculosis -----	2	1		3
				17
Southern Branch at Los Angeles:				
Diphtheria -----	9	11	3	23
Rabies -----	1			1
Tuberculosis -----	1			1
Typhoid -----		1	1	2
				27
Total number of examinations -----				260

Division of Preventive Therapeutics.

Pasteur Treatment for the Prevention of Rabies by the State Hygienic Laboratory during the month of March, 1913.

	Treatment commenced.	Treatment completed.
Main Laboratory at Berkeley.....	7	14
Northern Branch at Sacramento.....	2	1
San Joaquin Valley Branch at Fresno.....	4	3
Southern Branch at Los Angeles.....	0	0
Laboratory of Sacramento Board of Health, by deputized bacteriologist	0	0
Laboratory of San Francisco Board of Health, by deputized bacteriologist	15	11
Laboratory of Los Angeles Board of Health, by deputized bacteriologist	2	2
Laboratory of Letterman General Hospital, Presidio, by deputized bacteriologist	2	1
	32	32

Public Health Instruction.

Participation in Instruction in Public Health during March, 1913.

Main Laboratory at Berkeley:	
Bacteriological instruction outfits sent out.....	2
Bacteriological instruction outfits in use.....	21
Lectures or talks by the Director.....	0

Division of Epidemiological Investigations.

Epidemiological Investigations during March, 1913.

Main Laboratory at Berkeley:	
Special investigations by the Director.....	7
Bacteriological examination of cement and coal dusts.	
Investigation of a slaughter-house and fertilizer plant in Oakland.	
Investigation of the need for prolonged quarantine in a case of questioned scarlet fever in Berkeley.	
Investigation of a case of suspected poliomyelitis in Alameda.	
Investigation of scarlet fever in the State Deaf, Dumb and Blind Institute in Berkeley.	
Investigation of smallpox in the State Hospital at Stockton.	
Continuation of the investigation into the methods of spread of poliomyelitis.	
Special investigation by the Chief Bacteriologist.....	1
Investigation of the methods of sterilization in common use in barber shops.	
Special investigation by the Assistant Bacteriologist.....	1
Continuation of the study of the virulence of diphtheria bacilli isolated from the throats of carriers.	

EXPLANATORY NOTE.—The use of negative cultures in releasing patients from quarantine, and in dealing with diphtheria-carriers, presents many difficulties when applied as a routine administrative measure. The following report bears upon one of a series of carrier problems, upon which the Director of the Laboratory has been instructed to collect experimental data, to be used as a basis for new administrative procedures.

Revised List of Depositories for the Mailing Outfits of the State Hygienic Laboratories.

County.	Town.	Drug store.
Alameda	Haywards	Rogers' Pharmacy
	Livermore	McKown & Mess
	Niles	Snedden's Pharmacy
	Oakland	Philip & Philip
	Pleasanton	Peter Rock
	San Leandro	O. J. Lynch's Pharmacy
Amador	Ione	Model Drug Store
	Sutter Creek	Morris & Siebe
Butte	Ohico	Ben Hastings Pharmacy
	Gridley	The Gridley Pharmacy
Colusa	Arbuckle	Chas. G. Stinson
	Colusa	Oscar Robinson
	Maxwell	Fouch's Drug Store
	Williams	J. F. Fouch
Contra Costa	Antioch	Palace Drug Co.
	Concord	O. W. Klein
	Crockett	Crockett Drug Co.
	Pinole	Pinole Drug Co.
	Richmond	Ferguson's Drug Store
Del Norte	Crescent City	Bowman's Drug Store
Fresno	Olovis	Olovis Drug Store
	Fresno	San Joaquin Drug Co.
	Kingsburg	Reliable Pharmacy
	Reedley	Reedley Drug Co.
	Sanger	O. A. Brehler
	Selma	Dusy & Sawrie
Glenn	Orland	Birch & Co.
Humboldt	Arcata	Skinner Duprey Drug Co.
	Eureka	Keller-Bohmansson Drug Co.
	Fortuna	Bowman's Drug Store
Imperial	Brawley	Fulton's Pharmacy
	Calexico	Aitken's Pharmacy
	Holtville	Holtville Pharmacy
Kern	Delano	Ramsay's Pharmacy
	East Bakersfield	Kern Drug Co.
	McKittrick	McKittrick Pharmacy
	Taft	Taft Pharmacy
	Tehachapi	Yerian Brothers
Kings	Corcoran	Corcoran Drug Store
Lake	Kelseyville	Pond Drug Store
	Lakeport	Meddaugh's Drug Store
	Lower Lake	Dr. H. P. Welper
	Middletown	Middletown Drug Store
Lassen	Susanville	J. B. Spaulding

County.	Town.	Drug store.
Los Angeles	Alhambra	F. B. Elwood
	Artesia	Artesia Pharmacy
	Azusa	Dolly Drug Co.
	Burbank	Burbank Pharmacy
	Claremont	College Drug Store
	Compton	Delmar Pharmacy
	Covina	W. W. Nash
	Downey	The Haygood Pharmacy
	Eagle Rock	Eagle Rock Drug Co.
	El Monte	El Monte Drug Store
	Florence	Florence Pharmacy
	Glendale	Glendale Pharmacy
	Huntington Park	Batcheller's Pharmacy
	Inglewood	Sollenberger's Drug Store
	Lordsburg	Kenyon's Pharmacy
	Los Angeles	M. S. Tague
	Monrovia	Thos. Neville
	Ocean Park	Moody's Drug Store
	Tropico	Ohas. F. Story's Pharmacy
	Venice	People's Drug Co.
Marin	Belvedere	Belvedere Pharmacy
	Mill Valley	Lockwood Pharmacy
	San Anselmo	Poppy Pharmacy
	San Rafael	Day's Pharmacy
	Sausalito	Sausalito Drug Co.
Mendocino	Fort Bragg	Pacific Drug Store
	Mendocino	C. O. Packard Drug Store
	Ukiah	Gibson's Pharmacy
	Willits	Rex Drug Co.
Merced	Dos Palos	Dos Palos Drug Store
	Los Banos	Bertholf Drug Store
	Merced	Merced Drug Co.
Modoc	Alturas	Gibson Drug Co.
Monterey	Monterey	Palace Drug Co.
	Salinas	Krough's Drug Store
Napa	Napa	Brownlee's Drug Store
Nevada	Nevada City	Dickerman Pharmacy
Orange	Anaheim	Mullinix Drug Store
	Orange	K. E. Watson Co.
	Fullerton	Finch's Drug Store
	Santa Ana	Rowley Drug Co.
Placer	Auburn	J. G. McLaughlin
	Colfax	J. L. Butler & Son
	Dutch Flat	Dr. J. H. Johnston
	Lincoln	Ingram's Drug Store
	Loomis	Loomis Pharmacy
Plumas	Quincy	Quincy Drug Store
Riverside	Banning	Banning Drug Store
	Beaumont	Robert Fulton
	Hemet	Wedemeyer's Pharmacy
	Riverside	F. A. Gardner & Co.
Sacramento	Elk Grove	"Ye Medicine Shop"
	Folsom	S. H. & F. P. Burnham
San Bernardino	Chino	Reher's Pharmacy
	Colton	Colton Pharmacy
	Redlands	Mont. P. Chubb Drug Co.
	San Bernardino	Owl Drug Store

County.	Town.	Drug store.
San Diego	Ohula Vista	Wigginton's Pharmacy
	Escondido	Baldridge Drug Co.
	La Mesa	La Mesa Drug Store
	Oceanside	Exton & Nichols
	Ramona	Thos. Jerman
	San Diego	Ferris & Ferris
San Joaquin	Stockton	Eagle Drug Store
San Luis Obispo	Arroyo Grande	W. A. Conrad, Jr.
	Cambria	People's Drug Store
	Paso Robles	W. O. Bennett
	San Luis Obispo	People's Pharmacy
Santa Clara	Campbell	Orchard City Drug Co.
	Los Gatos	Geo. A. Green's Pharmacy
	Mountain View	E. T. Johnson
	San Jose	Curtis & Henkle Drug Co.
	Santa Clara	Madden's Pharmacy
Santa Cruz	Santa Cruz	Palmer Drug Co.
	Watsonville	Steinhauser & Eaton
Shasta	Redding	Powell Pharmacy Co.
Sierra	Downieville	Downieville Drug Store
	Loyalton	Loyalton Drug Co.
Siskiyou	Dunsmuir	Red Cross Drug Store
	Etna Mills	W. J. Balfrey
	Sisson	Mt. Shasta Pharmacy
	Yreka	Avey Drug Co.
Solano	Benicia	Benicia Pharmacy
	Dixon	California Drug Store
	Rio Vista	Rio Vista Pharmacy
	Suisun	Criterion Drug Store
	Vacaville	Reid Drug Co.
	Vallejo	Vallejo Drug Co.
Sonoma	Healdsburg	Rathke Pharmacy
	Petaluma	Young-Herold Drug Co.
	Santa Rosa	Hahman Drug Co.
Stanislaus	Ceres	Ceres Drug Co.
	Modesto	Maze Drug Store
	Newman	Pioneer Drug Store
	Oakdale	Endicott's Drug Store
	Turlock	Turlock Drug Co.
Tehama	Red Bluff	Elmore Pharmacy
Trinity	Weaverville	D. B. Fields, M.D.
Tulare	Dinuba	McCracken's Pharmacy
	Exeter	Mixter Pharmacy
	Lindsay	Lindsay Drug Co.
	Tulare	E. Allen Test
	Visalia	J. M. Boynton
Tuolumne	Sonora	Union Drug Store
	Tuolumne	Bigelow's Drug Store
Ventura	Nordhoff	Ojal Drug Store
	Santa Paula	Cauch's Drug Store
	Ventura	Pioneer Drug Store
Yolo	Winters	Day's Drug Store
	Woodland	John V. Leithold
Yuba	Marysville	Horning Drug Co.
	Wheatland	Wheatland Pharmacy

A SPECIAL INVESTIGATION INTO THE VIRULENCE OF DIPHTHERIA BACILLI IN THE THROATS OF CARRIERS.

By ESTHER M. SKOLFIELD, A.B., Assistant Bacteriologist,

State Hygienic Laboratory.

Recently, because of the question of quarantine, the State Hygienic Laboratory found it of interest to investigate the virulence of diphtheria bacilli in the throats of recovered patients who had retained the organisms from six weeks to three and one half months. The patients were residents of Berkeley, Alameda, and Hayward.

Technique.

The guinea-pig inoculation test was used. The technique requires special consideration.

(a) Types of bacilli. Recorded according to Wesbrook's classification. The types are given in order of predominance.

(b) Animal inoculation test.

1. Isolation either by fishing distinct colonies from the throat culture, or by means of the "streak method." The colonies were first planted upon Loeffler's blood serum medium.

2. Examination of colonies and inoculation of a tube containing 8 to 10 c.c. of alkaline broth.

3. Broth cultures slanted and grown for forty-eight hours at 37° C. If growth was not heavy on first transplant into broth, a second transplant was made and grown forty-eight hours.

4. Examination of broth cultures for purity of growth. All the strains of bacilli from the same patient were mixed. A normal guinea-pig weighing between 250 and 350 grams, preferably 250 grams, was injected near the median line of the abdomen with a dose corresponding to 0.5 per cent of the body weight of guinea-pig, expressed in cubic centimeters. A control guinea-pig was given a corresponding amount of culture and an equal amount of antitoxin containing 600 units per c.c.

5. The animals were kept under careful observation for four days, and were examined for edema at point of inoculation. Death within four days with typical lesions was considered a positive test.

6. In case of death, autopsy was performed and smears were made from the pus at the point of inoculation.

The preparation of the broth is especially important. Beef infusion broth, neutralized to litmus with Na_2CO_3 and then made 0.7 per cent alkaline with normal KOH or NaOH, seems to produce the maximum amount of toxin in the shortest time. The formula used is a slight modification of that of Dean, described in *The Journal of Hygiene* for December, 1912.¹ The addition of dextrose, as recommended by Kolmer,² is unnecessary. That beef infusion broth is better than beef extract broth is shown by the striking superiority of the former in abundance and rapidity of growth, and, as illustrated in the L. case, in the virulence of the culture.

Formula for beef infusion broth. (Based on methods of Hiss and Zinsser,³ and Dean.)

1. Infuse 500 grams of ground lean beef, twelve to twenty-four hours, with 1,000 c.c. of distilled water, in refrigerator.

2. Strain through wet cheese cloth and make up volume to 1,000 c.c.

3. Add 5 grams of common salt and 15 grams of Witte's peptone.
4. Warm over water bath until peptone is dissolved, not allowing temperature to rise above 50° C.
5. Make up for loss of volume by evaporation.
6. Neutralize with Na₂CO₃ solution, using litmus paper as indicator, and then add 7 c.c. normal KOH or NaOH solution.
7. Heat in Arnold sterilizer for 30 minutes: shake, and heat again for 15 minutes.
8. When cold, filter through cotton until clear. Tube, and autoclave for 20 minutes.

Experiments.

Patient's name and residence.	Time since taking of first culture.	Type of bacillus in culture used.	Brach. reaction, and transplant.	Weight of guinea-pig in grams.	Time required for death of guinea-pig.
C. D., Hayward.....	44 days	DD ₁ 2 strains used.	Beef extract... -0.7	250	95 hours
	45 days	D ₂ D ₁ D	2d transplant Beef infusion... -0.7	292	30-33 hours
	46 days	D ₂ D ₁ 2 strains used.	2d transplant Beef infusion... -0.7	348	29 hours
			2d transplant		
K. H., Hayward	48 days	D ₂ D ₂ E 1 strain used.	Beef extract... -0.7	280	43 hours
			2d transplant		
M. H., Hayward	49 days	DD ₂ 1 strain used.	Beef extract... -0.7	240	44 hours
	50 days	EDD ₂ C 4 strains used.	2d transplant Beef infusion... -0.7	220	25-30 hours
			2d transplant		
O. O., Hayward	46 days	CBDD ₂ E 1 strain used.	Beef infusion... -0.7	293	24 hours
			2d transplant		
N., Alameda	62 days	DC 2 strains used.	Beef infusion... -0.7	355	42 hours
			2d transplant		
O., Alameda	90+ days	DD ₂ 1 strain used.	Beef infusion... -0.7	365	36 hours
			2d transplant		
Berkeley case (third isolation)	1st culture	CD 1 strain used.	Beef extract... -0.7	270	60 hours
L., Berkeley	47 days	D ₂ D	Beef extract... -0.7	260	36 hours
			1 transplant		
L., Berkeley	60 days	D ₂ (a few of "Type D") 3 strains used	Beef extract... -0.7	230	no death
			2d transplant		
Test 1		Same as in test 1.	Beef extract... 100% growth	240	14 days no lesions
Test 2			Beef extract... 100% growth		
Test 3		D ₂ D 2 strains used	Beef extract... 100% growth	250	12 days no lesions
Test 4		Same as in test 3	Beef extract... 100% growth	360	48 hours
	106 days	(*) 2 strains used	Beef extract... 100% growth	292	84-90 hours

*This test was made in the Department of Hygiene of the University of California by Miss Jewel Fay, who has kindly given me her results.

The control guinea-pigs were protected by antitoxin in every case.

Lesions.—Upon autopsy, the point of inoculation was found soggy with bloody exudate and a small amount of pus, which on smears showed diphtheria bacilli, many of which were inside of leucocytes. The body wall was usually redder than normal. Hemorrhages were noted under the peritoneum of the abdominal wall, of the mesentery, and of the stomach, and also superficially in the heart. The body exudates were often increased. Circumscribed areas of pus occurred within the abdominal cavity near the inguinal glands, and, in one case, around the pancreas. Most typical was a congestion of the internal organs, particularly the adrenal glands, which appeared swollen and dark red, instead of yellow, in color.

Discussion.

The L. case presents some interesting results. The virulence of similar types of bacilli, isolated at different times, seems to vary as shown by Miss Fay's experiment and my third test. Also, since the virulence was probably slight, the broth used made a difference in results because of the quantity of toxin produced. This was shown by my third and fourth tests, where the only apparent cause for the fourth test being positive was the use of beef infusion instead of beef extract broth. Clinically, this case is interesting in that the patient had only mild symptoms of tonsilitis though typical diphtheria bacilli were demonstrated in the throat. Granular types of the diphtheria bacillus were retained in the throat for over four months.

Although all the carriers mentioned in this experiment were released from quarantine and permitted to attend school before negative cultures were obtained, up to the present time (two to three months after release) we have learned of no contact cases from these patients. The relative virulence of diphtheria bacilli to the sensitive guinea-pig and to more or less resistant human beings has been discussed too often, without experimental data, to give space to it here. However, it is generally conceded that the guinea-pig tests may be of aid in the practical management of diphtheria.

Conclusions.

In testing the virulence of diphtheria bacilli, beef infusion broth, first made neutral to litmus with Na_2CO_3 or MgCO_3 , and then made 0.7 per cent alkaline with normal KOH or NaOH, gives excellent results. Several strains of *B. diphtheriæ* should be isolated and a good growth on broth obtained before the inoculation of the guinea-pig.

If guinea-pig tests are used, I recommend that they be used merely on cultures from "release" patients continuing to show only solid types of diphtheria bacilli, and, in rare cases, where a patient whose cultures show granular types is held in quarantine over a long period of time. It is of value in dealing with plain bacilli to differentiate between *B. Hoffmanni* and solid types of *B. diphtheriæ* by sugar broths. However, I do not consider that the virulence tests performed in this investigation have been of sufficient value in the management of the cases to warrant the use of the test in routine work.

References.

- ¹MacConkey, A. (1912). The Toxin of *B. diphtheriæ*. Jour. of Hygiene, XII 508.
²Kolmer, John A. (1912). Bacteriology of Diphtheria. Jour. of Infectious Diseases, XI 65.
³Hiss, P. H., and Zinsser, Hans (1910). Text-book of Bacteriology, 124.

REPORT OF BUREAU OF FOODS AND DRUGS FOR MARCH, 1913.

M. E. JAFFA, Director.

It is encouraging to note from the reports of the inspectors when visiting small towns that the dealers are co-operating with the State Board of Health in the enforcement of the pure food and drug laws. This is evidenced by the desire on the part of the retailer to procure a proper guarantee from the wholesaler, and it is more than gratifying to know that the wholesaler or jobber is invariably willing to accede to the request of the retailer in this connection. From the correspondence and reports, it is also evident that the wholesaler, jobber or importer is always willing to exchange old and mislabeled samples for those conforming to the law.

During the month of February, 1913, upwards of one hundred sample of various foods, food products and drugs were received at the laboratory, the majority of samples being submitted by the official inspectors, but quite a number were forwarded by the stewards of the different state institutions for examination and analysis in order to ascertain whether or not the materials supplied to said institutions were in conformity with the specifications for the prospective products.

The list of foods examined would indicate that there is no special mention to be made with reference to any one article of food.

Of the samples sent in, meats, extracts and vinegars predominate. It may be said that a very few of the samples of meats submitted were found to be in violation of the law.

The retail butchers in the State are complying with the rules and regulations of the State Board of Health in the matter of the use of preservatives and the proper labeling of meat and meat food products. Advice or suggestion concerning the correct labeling will be cheerfully given upon application to Director of Bureau of Foods and Drugs, Berkeley, Cal. No food inspection decisions were received during the past month.

Any one wishing copies of judgments as listed below may obtain the same by addressing the Director of Food and Drug Laboratory, University of California, Berkeley, Cal.

The following Notices of Judgments have reached the laboratory and are available for distribution to those interested:

- No. 1893—Adulteration and Misbranding of Oats.
- No. 1895—Alleged Adulteration and Misbranding of Grape Juice.
- No. 1897—Alleged Misbranding of Jelly.
- No. 1901—Misbranding of Horse Feed.
- No. 1903—Misbranding of Canned Sugar Corn.
- No. 1900—Misbranding of Hominy Feed.
- No. 1902—Adulteration and Misbranding of Cordial.
- No. 1904—Adulteration and Misbranding of Cove Oysters.
- No. 1905—Adulteration and Misbranding of Vinegar.
- No. 1906—Adulteration and Misbranding of Strawberry Flavor, Pear Flavor, and Pineapple Flavor.
- No. 1907—Adulteration and Misbranding of Mixed Feed.
- No. 1908—Misbranding of So-called Digesto Malt Extract.
- No. 1909—Adulteration and Misbranding of Ferro China Bisleri and of Fernet Branca.
- No. 1910—Adulteration of Tomatoes.
- No. 1920—Adulteration and Misbranding of Tomato Catsup.
- No. 1911—Adulteration and Misbranding of So-called Temperance Tonic.

- No. 1912—Misbranding and Alleged Adulteration of Cough, Cold, Throat and Lung Cure.
- No. 1913—Adulteration and Misbranding of Wine.
- No. 1914—Misbranding of Pears.
- No. 1915—Adulteration and Misbranding of Vinegar.
- No. 1916—Misbranding of Tea.
- Nos. 1917, 1918—Misbranding of Cheese.
- No. 1919—Adulteration of Maple Syrup.
- No. 1921—Adulteration and Misbranding of So-called Wild Cherry Cordial.
- Nos. 1922, 1923—Adulteration and Misbranding of So-called Atlas Carbonated Soda.
- No. 1924—Adulteration and Misbranding of Syrup of Tamarind.
- No. 1925—Adulteration of Butter.
- Nos. 1926, 1927—Adulteration of Confectionery.
- No. 1928—Adulteration and Misbranding of Jamaica Ginger Essence and of Winter-green Essence.
- Nos. 1929, 1932—Adulteration of Milk.
- No. 1930—Adulteration of Cream.
- No. 1931—Misbranding of So-called Champagne.
- No. 1933—Misbranding and Alleged Adulteration of So-called Terpeneless Lemon Oil.
- No. 1934—Misbranding of Grits.
- Nos. 1935, 1936, 1954, to 1985 incl., 1988 to 2045 incl., 2051, 2068, 2092, 2151 to 2154 incl.—Adulteration of Milk.
- No. 1937—Misbranding of Whiskey.
- No. 1938—Misbranding of Raisins.
- No. 1939—Misbranding of Chewing Gum.
- No. 1940—Misbranding of Vanillin Powder.
- Nos. 1941, 1953—Adulteration and Misbranding of So-called Cider Vinegar.
- Nos. 1942, 1987—Adulteration of Tomato Catsup.
- Nos. 1943, 2085—Misbranding of Syrup.
- Nos. 1944, 1948, 2083, 2693—Adulteration and Misbranding of Vinegar.
- No. 1945—Adulteration and Misbranding of So-called Wurtzburger Malt Tonic.
- No. 1946—Misbranding of Butter.
- No. 1947—Misbranding of Apple Strawberry Jelly and Apple Raspberry Jelly.
- No. 1949—Alleged Misbranding of Oil.
- No. 1950—Adulteration of Mineral Water.
- Nos. 1951, 2077—Adulteration of Stock Feed.
- No. 1952—Adulteration and Misbranding of Cider.
- Nos. 1986, 2142—Alleged Adulteration and Misbranding of Evaporated Milk.
- Nos. 2046, 2048, 2081, 2101, 2102—Adulteration and Misbranding of So-called Olive Oil.
- No. 2047—Misbranding of Lemon Flavor.
- No. 2049—Adulteration of Catsup.
- No. 2050—Misbranding of Canned Peas.
- No. 2052—Adulteration and Misbranding of So-called Syrup of Tamarind.
- No. 2053—Misbranding of "Sunshine Suffolk Biscuit (Arrowroot)."
- No. 2054—Adulteration and Misbranding of So-called Grape Juice.
- No. 2055—Misbranding of Confectionery.
- No. 2056—Adulteration and Misbranding of So-called Blackberry Flavored Juice.
- No. 2057—Adulteration of Cheese.
- No. 2058—Adulteration of Chicory.
- No. 2059—Adulteration and Misbranding of Nitroglycerin Tablets.
- Nos. 2060, 2137—Adulteration and Misbranding of Blackberry Cordial.
- No. 2061—Adulteration and Misbranding of So-called Concentrated Export Vinegar.
- No. 2062—Adulteration and Misbranding of So-called Gelatine.
- No. 2063—Misbranding of Fish.
- No. 2064—Misbranding of Cream and Evaporated Milk.
- No. 2065—Misbranding of So-called Lemon Extract and Orange Extract, and Adulteration and Misbranding of So-called Vanilla Extract.
- No. 2066—Adulteration and Misbranding of So-called Blended Peach Brandy.
- No. 2067—Adulteration and Misbranding of Tomatoes.
- No. 2069—Misbranding of Mincemeat.
- No. 2070—Misbranding of "Lukum."
- No. 2071—Misbranding of So-called Fruit Juice.
- No. 2072—Adulteration of Oil of Cassia.
- No. 2073—Adulteration and Misbranding of Beer.
- No. 2074—Adulteration and Misbranding of Peas.
- No. 2075—Misbranding of Fernet-L-Branca.
- No. 2076—Misbranding of Lukoumia (Candy).
- No. 2078—Misbranding of Pepper.
- No. 2079—Adulteration of Herring.
- No. 2080—Misbranding of Sorghum Syrup.
- No. 2082—Adulteration and Misbranding of Jelly.

Cases Ordered Referred to District Attorneys March 1, 1913.

Article.	Offense.	Manufacturer or jobber.	Accused dealer.	Locality.
Fresh eggs ----- Chopped meat ---	Mislabeled. Eggs were not fresh----- Adulterated. Contains sulphites, over 500 mg. per kilo.	Loeb, Fleishman & Co. -----	(Protected by guaranty) Saratoga Market -----	Los Angeles. San Jose.
Fresh eggs ----- Test eggs -----	Mislabeled. Eggs were not fresh----- Mislabeled and adulterated. Sample consisted wholly or in part of decomposed and putrid eggs.	----- -----	A. Zenorini ----- S. D. Needham-----	Los Angeles. Berkeley.
Fresh eggs -----	Mislabeled. Eggs were not fresh-----	Loeb, Fleishman & Co. -----	(Protected by guaranty)	Los Angeles.

REPORT OF BUREAU OF PUBLICATIONS AND HEALTH INFORMATION FOR MARCH, 1913.

GUY P. JONES, Acting Director.

There are very few cities in the State where some sort of "clean-up" campaign has not been conducted this spring. From Siskiyou to San Diego reports have come pouring into this office of successful fights in fly extermination and all manner and sort of refuse removal. Several cities have devoted their civic energy to the eradication of mosquitoes and at least three of the municipalities have started active work in improving their housing conditions. Several thousand newspaper clippings filed in this office tell the story of the multitude of activities along these lines that have been undertaken by the people.

This Bureau has a limited number of bulletins containing suggestions for conducting a "clean-up" campaign which will be sent free of all cost to any one who requests that it be sent to him.

LIST OF COUNTY HEALTH OFFICERS.

County.	Health officer.	Address.
Alameda	Dr. C. L. McKown	Niles
Alpine	County Recorder Frank Smith	Markleeville
Amador	Dr. E. E. Endicott	Jackson
Butte	Dr. L. Q. Thompson	Gridley
Calaveras	Dr. Irwin B. March	San Andreas
Colusa	Dr. C. A. Poage	Colusa
Contra Costa	Dr. W. S. George	Antioch
Del Norte	Dr. E. M. Fine	Crescent City
El Dorado	Dr. L. M. Lelsenring	Placerville
Fresno	Dr. G. L. Long	Fresno
Glenn	Dr. J. A. Randolph	Willows
Humboldt	Dr. Carl T. Wallace	Eureka
Imperial	Dr. Virgil McCoombs	El Centro
Inyo	Dr. I. J. Woodin	Independence
Kern	Dr. G. M. Bumgarner	Bakersfield
Kings	Dr. Ralph Motherol	Hanford
Lake	Dr. W. E. Upton	Kelseyville
Lassen	Dr. R. W. T. Garner	Susanville
Los Angeles	Dr. E. O. Sawyer	Los Angeles
Madera	Dr. Mary R. Butlin	Madera
Marin	Dr. J. H. Kuser	Novato
Mariposa	Dr. F. W. Gallion	Mariposa
Mendocino	Dr. J. Lifchild	Ukiah
Merced	Dr. J. H. Mudd	Merced
Modoc	Dr. John Stile	Aituras
Mono	Dr. R. A. Cushman	Bridgeport
Monterey	Dr. Garth Parker	Sallinas
Napa	Dr. E. G. Smart	Napa
Nevada	Dr. Carl P. Jones	Grass Valley
Orange	Dr. John Wehrly	Santa Ana
Placer	Dr. J. S. Wheeler	Roseville
Plumas	Dr. F. D. Walsh	Quincy
Riverside	Dr. George E. Tucker	Riverside
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STANDING NOTICES.

The law makes it the duty of every physician and every citizen who knows of the existence of any case of a communicable disease, to report the same to his local health officer.

The law also requires every physician to report any case of a disease due to occupation. A fee of fifty cents is paid for each report.

Reports of births, deaths, and marriages are required of certain persons. Your local health officer, or registrar of vital statistics will explain all the details of the law.

The State Board of Health maintains depositories for mailing tubes for sending cultures and specimens to its laboratories at Berkeley for examination. Every physician is invited to avail himself of the nearest depository. A circular of details will be sent upon application.

The California State Board of Health Bulletin is on file in every public library, newspaper office, high school library, and in the offices of county and city health officials. Citizens desiring copies of this issue free of charge should apply to the Secretary, Sacramento.

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THE CALIFORNIA STATE BOARD OF HEALTH.

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REGULAR MEETINGS.

The meetings of the California State Board of Health are held regularly the first Saturday of each month, but the quarterly meetings required by law to be held at the Capitol of the State are ordinarily designated as January, April, July, and October.

By courtesy of the University of California the Food and Drug Laboratory and the Hygienic Laboratory are located in University buildings at Berkeley, California.

Address all communications to the

SECRETARY, Sacramento, California.

MAY BULLETIN.

COMMENTS.

Seasonal Variations in Disease Prevalence.

Why should there be any seasonal variations in prevalence of diseases? This has been definitely answered in certain diseases. For example, it has been discovered that malaria is only transmitted through the agency of a certain species of mosquito, and this mosquito either dies at the beginning of winter or hibernates during the cold weather. Thus the malaria parasite has no chance to be distributed during the winter season, but runs up a heavy score of cases during the summer months. The causes of seasonal variations for some other diseases are understood, but for the majority no adequate explanation exists as yet.

In California ten diseases caused a few more than 31,000 deaths in three years (Jan. 1, 1910-Dec. 31, 1912).

The table below presents certain facts that are significant. Of this number (31,000), 22,725 were due to tuberculosis and pneumonia, which are ordinarily considered to be respiratory diseases; and 5,367 were due to diarrhoea and typhoid fever, which are classed as intestinal diseases. In other words 90.6 per cent of these deaths were due to four of the ten diseases; 73.3 per cent being due to the first two. Of the tuberculosis and pneumonia cases 40.8 per cent occurred in December, January, February and March, as against 26.6 per cent occurring in June, July, August and September. On the other hand, 44.9 per cent of the diarrhoea and typhoid fever cases occurred in June, July, August and October, as against 20.9 per cent occurring in January, February, March and April.

		Median age at death.	Expectation of life.	Ratio of preventability.	Number which should have died.	Chief factors in preventing deaths.	
1. Tuberculosis	14,607	33 years	33 years	75%	11,247	Housing, health, early treatment.	
2. Pneumonia	7,728	37 years	30 years	45%	3,478	Good general health.	
3. Diarrhea	4,004	1 year	50 years	80%	2,402	Clean milk; good food.	
4. Typhoid fever	1,863	25 years	38 years	85%	1,189	Pure water; typhoid vaccination.	
5. Meningitis	1,079	2 years	54 years	70%	765	Antimeningitis serum.	
6. Whooping-cough	898	1 year	50 years	40%	267	Avoidance of contacts.	
7. Diphtheria	528	3 years	54 years	70%	377	Early diagnosis; diphtheria anti-toxin.	
8. Measles	414	1 year	50 years	60%	166	Avoidance of contacts.	
9. Scarlet fever	183	3 years	54 years	50%	92	Avoidance of contacts.	
10. Smallpox	26	33 years	34 years	75%	20	General protective vaccination; immediate vaccination after exposure.	
			Total.	Number and per cent under three years.	Number and per cent 25-37 years.	Total deaths, all causes.	Per cent of these ten to all causes.
1. January			3,077	454 (14.7)	2,623 (85.3)	5,241	23.2
2. December			2,890	588 (19.2)	2,302 (80.8)	10,149	28.2
3. March			2,858	502 (18.6)	2,356 (81.4)	9,098	31.4
4. February			2,707	442 (16.3)	2,265 (83.7)	8,473	31.9
5. May			2,679	543 (20.3)	2,136 (79.7)	8,648	31.0
6. April			2,519	482 (19.1)	2,037 (80.9)	8,308	30.8
7. November			2,519	548 (21.8)	1,971 (78.2)	8,541	29.5
8. June			2,465	738 (29.9)	1,727 (70.1)	8,028	30.7
9. July			2,400	746 (31.1)	1,654 (68.9)	8,149	29.6
10. October			2,368	651 (27.5)	1,717 (72.5)	8,295	28.7
11. August			2,278	644 (28.3)	1,634 (71.7)	7,836	29.1
12. September			2,180	580 (26.6)	1,600 (73.4)	7,634	29.2
			31,000	8,878 (28.8)	22,122 (71.2)	102,399	29.3

In the second table, printed above, the months are arranged in order of the prevalence of the diseases listed. It will be noted that December to March inclusive stand at the top of the list, while July to October inclusive stand at the bottom. It happens as a rule that the winter months listed have the majority of cold, wet, cloudy days with strong, penetrating winds, while the summer months have the majority of warm, dry, cloudless days, with gentle winds. These climatic conditions supplement our industrial conditions which demand a maximum number of persons for heavy indoor work during the winter months, and shift this maximum to outdoor work during the summer period. The amusements and general activities of the people also lead indoors in winter and out into the open in summer.

Undoubtedly these factors play an important part in the seasonal distribution of these diseases, but obviously they can not account for everything. For example, 24,112 of the total number (77.8 per cent) died of the diseases claiming their victims between the median ages of 26–37 years, while 6,878 (22.2 per cent) represented the median ages of 1–3 years, and the maximum number of deaths in the adult group occurred during the winter months, in contrast to the maximum number among the infant group occurring in the summer months. Babies under three years of age live closely at home and as a rule go where their parents go, hence will get outdoors in California when their parents do. Differences in character of food supplies and the increased dangers of contaminated milk supplies in summer are factors related to this. Habits of bathing, character of clothing, and other items of personal hygiene are factors to be considered in any study of this problem.

The ten diseases included in the above tables were selected because they are all communicable diseases believed to be caused by specific micro-organisms—in six* of them these organisms are known, in four† science has not yet positively identified any organisms as causative, but has developed evidence to indicate that they are due to the activities of micro-organisms. None of the ten are limited to transmission by any insect. All of them, in varying degrees, are recognized as contact diseases, *i. e.*, diseases in which close contact with a patient having the disease is likely to result in contracting it; but in pneumonia, diarrhoea and meningitis this danger from contact requires special unknown or little understood conditions in order to become of any importance, and in tuberculosis and typhoid fever proper observance of simple and practical precautions will prevent the danger from contact. Therefore, in this group of five of the ten diseases, the patients themselves are chiefly a factor by being reservoirs from whose bodies disease-germs escape, which indirectly through a multiplicity of methods succeed in entering the bodies of other persons, a certain percentage of whom will be unable to withstand this invasion and consequently will develop the disease. This group includes 94.1 per cent of the 31,000 deaths (29,171). The remaining group of five diseases—whooping-cough, diphtheria, measles, scarlet fever, smallpox—are markedly a group of contact diseases, but constitute only 5.9 per cent (2,829) of these deaths.

*Tuberculosis, pneumonia, diarrhoea, typhoid, meningitis, diphtheria.

†Whooping-cough, measles, scarlet fever, smallpox. In the recent investigations of whooping-cough an organism seems to have been "proved-up" as the specific cause.

In the first group—tuberculosis, pneumonia, diarrhœa, typhoid, meningitis, as well as in the second group—diphtheria, whooping-cough, measles, scarlet fever, smallpox—cases occur every month in the year. But with the exception of meningitis the conditions governing the prevention of each disease in the first group are fairly well understood, while in the second group, except for diphtheria, these conditions are not well understood.

With proper organization and competent trained men "on the job" all the year round, and with the active co-operation of the people 19,963 out of the 31,000 victims of these ten diseases, it is estimated, might have been alive and well to-day with from thirty to fifty more years of useful life ahead of them. This is the significant and tragic fact about these ten diseases which are popularly supposed to be seasonal in prevalence. The value of human life in terms of money is always repugnant, but the prevention of disease and death must be presented in money estimates for equipment, salaries, etc., for those engaged in the prevention work. A good slave fifty years ago, who was physically sound and without education or technical training, was worth \$1,500. If it be conceded that freemen and children as an average are to-day worth as much, then the public policy of neglecting the enforcement of recognized preventive measures against these ten diseases has cost the State \$30,000,000 in the past three years, or \$10,000,000 per year. Four per cent interest on \$10,000,000 is \$400,000 annually.

* * * * *

**Popularizing
Preventive
Medicine.**

"Preventive medicine" is defined in dictionaries as "that branch of medical science which aims to prevent or ward off disease by properly directed hygiene, personal and public." Hygiene is defined as "the science that treats of the laws of health in its broadest sense." These are vague definitions, but until recent years they were justified by the vagueness of the subjects they sought to define. Applied preventive medicine and hygiene are almost wholly a twentieth century product, and the twentieth century is only twelve—"going on thirteen"—years of age. It is a wise provision of Nature that mountain climbers get out of breath, for in stopping to regain their breath, they get their minds off the immediate obstacles to the next step, and their horizon broadens out from the immediate environment of their feet, and they see the splendid view below them as well as the inspiring unexplored heights above. It is so in preventive medicine. Already the backward look over the past twelve years presents a wonderful advance, and promises great advances for the future. The results to be achieved in the prevention of disease so largely depend upon the individual co-operation of the citizens that popular education must be one of the chief factors in progress. One of the significant movements of the past five years has been the establishment of welfare departments of industrial enterprises. Competent medical officers are in charge of these departments and are equipped with facilities for examining and advising employees. They also are instructed to prepare and issue brief practical leaflets upon foods, room-ventilation, clothing, sleeping porches, and all the various subjects of personal hygiene.

One insurance company that has taken up this work in a most admirable way, provides the option of a free physical and medical examination of each of its policyholders every two years. This company also maintains a "Health and Happiness League," the members of which are the wives of policyholders. The certificate of membership contains the following:

"----- having promised that she will do all in her power to help the ----- to improve the health of its policyholders, and that she will do all in her power to preserve her own bodily health and add to the happiness of others, is hereby declared a member -----."

The literature sent to these members is accurate, interesting, well illustrated, and covers everything about the home related to health, from the baby to the Sunday afternoon outing. All this has been established in the line of good business policy. It pays to keep policyholders well and happy; they live longer, and have money to pay premiums; more premiums mean a larger volume of business each year. The success of this policy has appealed to many corporations, which have need for healthy, happy employees.

The influence of such educational work can not be overestimated in promoting the health conservation movement. But the attention of the owners and managers of these corporations should be drawn to the fact that the best results of their outlay in this direction will be attained only by supplementing it by the organization of strong sanitary and public health service. The promise of the member of the insurance company's league was to "do all in her power to help ----- improve the health" of her husband and family and "to preserve her own bodily health." It is *not in her power* to do those things for which the public health departments are created.

In the health conservation problem three agencies must always be considered:

1. *The Citizen*—who applies to the maintenance of his own individual health the knowledge of personal hygiene which he possesses.

2. *The Health Department*—which applies to the environment of the citizen, present knowledge of public hygiene and sanitation, and exercises necessary control over the activities and social intercourse of individuals who are temporarily a source of danger to their fellow citizens, by reason of having some communicable disease.

3. *The Physician*—who treats or prevents the recurrence of those diseases which are not communicable or for which science has not thus far demonstrated practical preventive measures which can be carried out by either of the first two agencies.

These three agencies are so closely interrelated that no advance can be made in one without affecting the others. The closest sympathy and co-operation should therefore be fostered among those concerned in forwarding the work of each one.

Among the diseases which still remain almost entirely in the province of the physician may be named four groups which do not contain any popularly known as seasonal diseases and are not communicable—(1) diseases of the nervous system; (2) diseases of circulatory system; (3) Bright's disease and nephritis (kidney diseases); and (4) cancer.

For the three years referred to in the tables for the ten communicable diseases, these four groups caused 37,862 deaths in California. Thirty-six per cent died during the months of December, January, February, March; 32.5 per cent in April, May, June, July; 31.5 per cent in August, September, October, November. The following table is interesting in its bearing on the prevention or rather postponing of non-communicable diseases.

	Median age death.	Expectation of life.	Ratio of cases postponable to all cases of the disease.	Number who should have lived longer.	Prolonged by—
1. Nervous system -----	64	13	35%+	2,200+	Early diagnosis, careful medical supervision, etc.; occupation and living conditions properly adapted to condition.
2. Circulatory system -----	67	12	25%+	4,200+	Early diagnosis, careful medical supervision, etc.; occupation and living conditions properly adapted to condition.
3. Kidney diseases -----	62	16	40%+	2,550+	Early diagnosis, careful medical supervision, etc.; occupation and living conditions properly adapted to condition.
4. Cancer -----	61	14	7%+	7+	Early diagnosis, surgical measures, etc.

The age at death in this group is well advanced, but at least 10,000 out of the 37,862 victims of these diseases might have had their lives prolonged from 12-16 years. This is approximately one out of every four.

It will readily be seen that within his own division of the health-conservation problem, the physician has much to do in the way of prevention and postponement of death. Early diagnosis and personal advice are the chief factors in achieving these results. The work begun by business corporations in popularizing medical and hygienic knowledge should be furthered by similar work by the physicians. The American Medical Association and its component societies have done excellent work in this field of popular education, but thus far their efforts have been largely with the people and in the field of communicable diseases and sanitation, rather than with the physicians themselves, and what the latter should be doing in their own particular field.

The three great national organizations which should work harmoniously and in carefully co-ordinated fields of activity in popularizing practical knowledge of preventive medicine are The National Education Association, The American Public Health Association, The American Medical Association. There are many national and international associations and organizations exerting great and far-reaching influence in preventive medicine, but none of these have the facilities of the three mentioned for directly reaching the rank and file of those persons in each community who must be depended upon to popularize rapidly authentic and wholesome information on preventive medicine subjects. These three organizations, therefore, should seek to supplement and give the widest publicity to the work of the multiplicity of other organizations contributing to the progress of health conservation.

Occupational Diseases.

During one of the legislative committee hearings recently, Mr. Andrew Furuseth, quoting Browning, said "A country is wealthy in proportion to the number of healthy men and women whom it possesses." The picture of an influential labor-leader quoting Browning before a joint committee of the legislature is interesting and sounds like an account of an afternoon tea party, but Mr. Furuseth was very much in earnest; he was arguing for a bill designed to protect the health of certain workingmen. The statement quoted is true and the importance of protecting the health of workmen is great. There exists in Milan, Italy, a special scientific institute for research on industrial diseases, and England, Germany, and other nations have collected much valuable information on occupations in relation to disease. The United States thus far has done little.

Two years ago the legislature of California passed a bill requiring the reporting of all persons ill as a result of working with lead, phosphorus, arsenic, mercury, anthrax or compressed air. The Governor approved the bill, and this year there has been placed before him for consideration a bill providing a farther extension of the list of reportable diseases, and establishing an administrative method for thorough investigations and control of all important conditions favoring occupational diseases.

There will occur June 8-13, 1913, in Rome, the fourth National Conference on Occupational Diseases. An organization, which holds annual meetings in the United States—The National Association for Labor Legislation—has paid particular attention to occupational diseases in this country during the past few years, and has had a marked influence in stimulating interest in the subject. It is to be hoped that in 1915 an exhibit on this subject may be presented in San Francisco. Secretary Andrews of the American association mentioned, stated recently before the National Civic Federation that at least 13,000,000 cases of illness among workers and a money loss of \$750,000,000 annually, had been estimated as due to occupational diseases in the United States.

* * * * *

The Annual Exodus from the Poorman's Winter Resorts.

People are accustomed to the migrations of birds and tramps; but few realize the extensive migration of those engaged in seasonal occupations, nor stop to consider what becomes of the lumberman, the miner, laborers in construction camps, and others engaged in occupations which have a closed winter season. The men from these occupations, pursued in an environment of California mountain and rural conditions, come into the cities for four or five months of enforced idleness (or at best irregular city work). They are used to coarse food and rough lodgings; they have limited resources; they fail to see the difference between the wholesome plain fare of meat, potatoes, beans, bread, etc., in the mountains and the unwholesome food of the same character in the cheap restaurants in the cities. Furthermore, they do not understand that the mountain-labor appetite is a false guide in selecting the kind and amount of food they require during these idle winter months. It is the same with lodgings. They do not realize that a bunk, which is one's own in a mountain shack among other bunks in which are sleeping healthy, hard working associates, is a very different

affair from the apparently similar bunks filled by constantly changing and frequently unhealthy men who live in the cheap lodging houses of the city.

For the men of these occupations the inland cities of California are winter resorts, often exerting on their lives and health far more disastrous influences than are exerted by the summer resorts on the lives of families and people who go into the mountains without knowing how to find out whether the water supplied them is pure and the accommodations given them are sanitary.

The State Board of Health has been studying this problem for several years, and expects to be able during the next year to make a careful survey of the living conditions of these winter resorts, and particularly to investigate the dietary standards required by these men during the intervals between their employment in seasonal occupations.

REPORT OF BUREAU OF ADMINISTRATION.

JOHN F. LEINEN, Director.

Division of Sewage Disposal and Water Supplies.

No formal applications for permits for sewage disposal were received by the Board during April. It is expected, however, that a large number of applications will be made in the near future as soon as the Board, through its Consulting Engineer, is able to determine the exact status of all communities in the State under the terms of Chapter 339 of the Public Health Act, approved April 1, 1911. Those communities plainly coming under the law will then be asked to make formal application without further delay. Up to the present time the organization of the work of this division has been such that no more applications than have already been received could have been considered.

During the month the Board's Consulting Engineer held special conferences with parties concerned relative to the sewage disposal problems of Los Gatos and Stockton, and the proper disposal of the wastes from the Winters cannery.

A comprehensive report upon the sewerage and sewage disposal problem of the city of Placerville was completed and submitted to the Board for action. Work upon the preparation of an exhaustive report upon the present sewerage conditions and the general sewage disposal problem of Orange was continued during the month.

REPORT OF BUREAU OF VITAL STATISTICS.*

GEORGE D. LESLIE, Director.

State Totals and Annual Rates.—The following table shows for California as a whole the birth, death and marriage totals for the current and preceding months in comparison with those for the corresponding months of last year, as well as the annual rates per 1,000 population represented by the totals for the current and preceding months. The rates are based on an estimated midyear population of 2,671,491 for California in 1913, the estimate having been made by the Census Bureau method with slight modifications.

Birth, Death and Marriage Totals, with Annual Rates per 1,000 Population for Current and Preceding Months for California: March.

Month.	Monthly total.		Annual rate per 1,000 population: 1913.
	1913.	1912.	
March—			
Births -----	3,488	3,306	15.4
Deaths -----	3,330	3,363	14.7
Marriages -----	2,167	1,816	9.6
February—			
Births -----	3,270	3,062	16.0
Deaths -----	3,254	3,080	15.9
Marriages -----	2,040	2,184	10.0

The birth and marriage totals for March were much greater in 1913 than in 1912, while the monthly death total was not far from the same each year.

County Totals.—The first table which follows below shows the monthly birth, death and marriage totals for the principal counties of the State, the list being limited to counties having a population of at least 25,000 according to the Federal Census of 1910. Totals are also shown for San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), as well as for Los Angeles and Orange counties together.

City Totals.—The second of the following tables gives the birth and death totals for the principal freeholders' charter cities, the list including all chartered cities with a census population of at least 15,000 in 1910. Totals are given likewise for San Francisco in comparison with Oakland, Alameda, and Berkeley, the three cities adjoining one another on the east shore of San Francisco Bay, as well as for Los Angeles in comparison with neighboring chartered cities (Long Beach, Pasadena, Pomona, and Santa Monica).

*NOTE.—The present report is for the month preceding, but one. This order must be followed hereafter because of the publication of the Bulletin during the early part of the month, before the tabulation of records for the preceding month is completed.

Birth, Death and Marriage Totals, for Principal Counties: March.

County.	March, 1913.		
	Births.	Deaths.	Marriages.
California	3,488	3,330	2,167
Counties of more than 25,000 population (1910):			
Alameda	347	321	195
Butte	43	39	16
Contra Costa	37	34	21
Fresno	132	90	60
Humboldt	39	35	16
Kern	60	51	33
Los Angeles	928	855	516
Marin	12	23	117
Orange	40	29	110
Riverside	41	31	37
Sacramento	125	133	106
San Bernardino	77	111	38
San Diego	128	132	73
San Francisco	560	664	342
San Joaquin	67	77	43
San Mateo	27	15	35
Santa Barbara	23	19	15
Santa Clara	132	113	79
Santa Cruz	26	32	19
Solano	24	32	10
Sonoma	56	66	23
Tulare	60	36	24
Selected groups:			
San Francisco and other bay counties.....	983	1,057	710
Los Angeles and Orange counties.....	968	884	626

Birth and Death Totals, for Principal Cities: March.

City.	March, 1913.	
	Births.	Deaths.
Freeholders' charter cities.....	2,155	2,143
Cities of more than 15,000 population (1910):		
Alameda	36	22
Berkeley	47	42
Fresno	59	39
Long Beach	44	42
Los Angeles	632	554
Oakland	234	215
Pasadena	39	40
Riverside	29	18
Sacramento	108	111
San Diego	100	102
San Francisco	560	664
San Jose	52	32
Stockton	21	37
Selected groups:		
San Francisco	560	664
Oakland, Alameda and Berkeley.....	317	279
Totals, bay cities.....	877	943
Los Angeles	632	554
Neighboring cities	109	114
Totals	741	668

Causes of Death.—The following table shows the classification of deaths in California for the current month, in comparison with the preceding month:

Deaths from Certain Principal Causes, with Proportion per 1,000 Deaths, for Current and Preceding Month, for California: March.

Cause of death.	Deaths: March.	Proportion per 1,000.	
		March.	February.
All causes -----	3,330	1,000.0	1,000.0
Typhoid fever -----	24	7.2	7.1
Malarial fever -----			0.9
Smallpox -----			0.3
Measles -----	8	2.4	2.5
Scarlet fever -----	1	0.3	1.8
Whooping-cough -----	12	3.6	3.7
Diphtheria and croup -----	17	5.1	2.2
Influenza -----	27	8.1	13.2
Other epidemic diseases -----	17	5.1	6.5
Tuberculosis of lungs -----	422	12.7	126.3
Tuberculosis of other organs -----	78	23.4	20.6
Cancer -----	209	62.8	62.1
Other general diseases -----	151	45.4	38.7
Meningitis -----	45	13.5	15.4
Other diseases of nervous system -----	301	90.4	89.1
Diseases of circulatory system -----	583	175.1	170.9
Pneumonia and broncho-pneumonia -----	310	93.1	110.3
Other diseases of respiratory system -----	81	24.3	24.9
Diarrhea and enteritis, under 2 years -----	44	13.2	13.5
Diarrhea and enteritis, 2 years and over -----	24	7.2	5.5
Other diseases of digestive system -----	163	49.0	47.6
Bright's disease and nephritis -----	217	65.2	68.2
Childbirth -----	26	7.8	9.8
Diseases of early infancy -----	126	37.8	30.4
Suicide -----	68	20.4	20.3
Other violence -----	230	69.1	62.1
All other causes -----	146	43.8	46.1

In March there were 583 deaths, or 17.5 per cent of all, from diseases of the circulatory system, and 500, or 15.0 per cent, from various forms of tuberculosis. Heart disease thus led tuberculosis greatly, as for some months past.

Other notable causes of death were: Diseases of the respiratory system, 391; diseases of nervous system, 346; violence, 298; diseases of digestive system, 231; Bright's disease and nephritis, 217; cancer, 209, and epidemic diseases, 106.

The deaths from epidemic diseases were as follows: Influenza, 27; typhoid fever, 24; diphtheria and croup, 17; whooping-cough, 12; measles, 8; and all other epidemic diseases, 18.

The deaths from the three leading epidemic diseases reported for the month were distributed by counties as follows:

Influenza.		Typhoid fever.		Diphtheria and croup.	
Alameda -----	1	Alameda -----	2	Alameda -----	1
Calaveras -----	1	Contra Costa -----	7	Butte -----	1
Kern -----	2	Fresno -----	1	Colusa -----	1
Los Angeles -----	7	Imperial -----	1	Fresno -----	1
Monterey -----	1	Kern -----	1	Humboldt -----	1
San Benito -----	1	Los Angeles -----	3	Los Angeles -----	5
San Diego -----	2	Mendocino -----	1	San Diego -----	1
San Francisco -----	2	Monterey -----	1	San Francisco -----	2
San Joaquin -----	2	Riverside -----	1	San Mateo -----	1
Santa Clara -----	3	Sacramento -----	2	Siskiyou -----	1
Siskiyou -----	1	San Francisco -----	2	Sonoma -----	1
Solano -----	1	Solano -----	1	Tulare -----	1
Tulare -----	1	Stanislaus -----	1		
Yolo -----	1				
Yuba -----	1				
Total -----	27	Total -----	24	Total -----	17

Geographic Divisions.—The following table presents data for geographic divisions, including the metropolitan area, or San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), in comparison with the rural counties of Northern and Central California.

Deaths from Main Classes of Diseases, from Geographic Divisions: March.

Geographic division.	Deaths: March.										
	All causes	Epidemic diseases	Tuberculosis (all forms)	Cancer	Diseases of nervous system	Diseases of circulatory system	Diseases of respiratory system	Diseases of digestive system	Diseases of genitourinary system	Bird's disease and nephritis	Violence
THE STATE.....	3,330	106	500	209	346	583	391	231	217	208	449
Northern California..	327	10	39	22	31	65	46	20	22	25	47
Coast counties.....	187	5	18	15	19	38	31	14	15	11	21
Interior counties.....	140	5	21	7	12	27	15	6	7	14	26
Central California.....	1,782	55	288	119	161	322	222	124	106	196	240
San Francisco.....	664	15	83	52	48	134	92	50	30	69	91
Other bay counties.....	398	12	52	29	43	76	50	16	19	46	50
Coast counties.....	185	8	25	7	28	30	17	8	19	15	28
Interior counties.....	540	20	75	31	42	82	63	50	37	66	71
Southern California..	1,221	41	223	68	154	196	123	87	90	77	162
Los Angeles.....	855	29	154	50	107	144	86	60	70	39	116
Other counties.....	366	12	69	18	47	52	37	27	20	38	46
Northern and Central California.....	2,109	65	277	141	192	387	268	144	127	221	287
Metropolitan area.....	1,057	27	135	81	91	210	142	66	49	115	141
Rural counties.....	1,052	38	142	60	101	177	126	78	78	106	146

Sex and Age Periods.—The proportion of the sexes among the 3,330 decedents in March was: Male, 2,018, or 60.6 per cent, and female, 1,312, or 39.4 per cent.

The following table shows the age distribution by numbers and per cents, of deaths classified by sex:

Deaths Classified by Sex and Age Periods, with Per Cents by Age Periods for California: March.

Age period.	Deaths.			Per cent.		
	Total.	Male.	Female.	Total.	Male.	Female.
All ages.....	3,330	2,018	1,312	100.0	100.0	100.0
Under 1 year.....	328	180	148	9.9	8.9	11.3
1 to 4 years.....	127	56	71	3.8	2.8	5.4
5 to 14 years.....	90	49	41	2.7	2.4	3.1
15 to 24 years.....	201	126	75	6.0	6.2	5.7
25 to 34 years.....	318	208	110	9.6	10.3	8.4
35 to 44 years.....	371	219	152	11.1	10.9	11.6
45 to 54 years.....	399	266	133	12.0	13.2	10.1
55 to 64 years.....	439	285	154	13.2	14.1	11.8
65 years and over.....	1,057	629	428	31.7	31.2	32.6

This table shows that relatively more females than males died at the age periods under 15 years as well as at 65 years and over, while relatively more males than females died at the age periods from 15 to 64 years.

Occupations.—The table below gives, for deaths 15 years and over, the number of men and women for whom such occupation was reported in contrast with those for whom no gainful occupation was shown. .

Deaths, 15 Years and Over, Classified by Sex and Occupation, with Per Cents by Sex, for California: March.

	Deaths.			Per cent male.	Per cent female.
	Total.	Male.	Female.		
15 years and over-----	2,785	1,733	1,052	62.2	37.8
Occupation reported -----	1,568	1,467	101	93.6	6.4
No gainful occupation-----	1,217	266	951	21.9	78.1

Of the 1,568 decedents for whom occupations were reported the males numbered 1,467, or 93.6 per cent, and the females only 101, or 6.4 per cent.

The following table shows the distribution of male decedents 15 years and over, engaged in the main kinds of occupation.

Deaths of Males Fifteen Years and Over Engaged in Gainful Occupations, Classified by Kind of Occupation, with Per Cents, for California: March.

Kind of occupation.	Males 15 years and over.	
	Deaths.	Per cent.
ALL OCCUPATIONS-----	1,467	100.0
Professional -----	85	5.8
Olerical and official -----	131	8.9
Mercantile and trading -----	102	6.9
Public entertainment -----	35	2.4
Personal service, police and military-----	64	4.4
Laboring and servant-----	288	19.6
Manufacturing and mechanical industry-----	306	20.9
Agriculture, transportation and other outdoor pursuits-----	449	30.6
All other occupations-----	7	0.5

Of the 1,467 male decedents for whom occupations were reported, 449, or 30.6 per cent, were engaged in agriculture, transportation, and other outdoor pursuits; 306, or 20.9 per cent, in manufacturing and mechanical industry; 288, or 19.6 per cent, in laboring and servant work; and altogether 424, or 28.9 per cent, in professional, clerical and official, mercantile and trading, and all other occupations.

It should be noted that the figures on deaths occurring in different occupations are necessarily affected by the fact that in California a large number of men are engaged in agriculture and other outdoor pursuits, while relatively few follow professional and similar occupations which show small numbers of deaths.

REPORT OF THE BUREAU OF THE HYGIENIC LABORATORY.

WILBUR A. SAWYER, M.D., Director.

Ozone Machines.

Several electrical machines are on the market which have for their purpose the conversion of the ordinary oxygen of the air into ozone. These machines are put out by companies which claim for ozone in breathed air health giving and bactericidal powers. Experiments being carried on in the State Hygienic Laboratory show that the products of one of the best known of these machines will kill guinea-pigs before they will destroy bacteria. Therefore, the machine is worthless as far as its sterilizing effect on breathable air is concerned. The principal physiological effect on normal human beings is an undesirable irritation of the respiratory tract. This leaves to the machine only one purpose in the public places in which they are being installed, and that is the concealment of unpleasant odors. As the machines interfere with the public's power to notice the condition of the air which they are breathing, such equipment abets the evasion of furnishing proper ventilation. The presence of an ozone machine in a public place, therefore, shows that there is something to be concealed about the air furnished. The ozone machine, when intended for alteration of air in the presence of human beings, has no legitimate claim to be a hygienic device, but it is rather a cover for those who wish to evade the laws of hygiene.

Division of Biological Examinations.

Summary of Examinations made in the California State Hygienic Laboratory during the Month of April, 1913.

Condition suspected.	Positive.	Negative.	Inconclusive.	Total.
Main Laboratory at Berkeley:				
Anthrax		1		1
Diphtheria	18	25		43
Gonococcus infection	5	9		14
Malaria		2		2
Rabies	26	2		28
Tuberculosis	8	17		25
Typhoid	6	12		18
Water pollution		1	2	3
Miscellaneous		3	1	9
				143
Northern Branch at Sacramento:				
Diphtheria	12	19		31
Malaria	3	4		7
Tuberculosis	1	6		7
Typhoid	3	10	1	14
Miscellaneous		1		1
				60
San Joaquin Valley Branch at Fresno:				
Diphtheria		4		4
Tuberculosis	1	3		4
Typhoid	1			1
				9
Southern Branch at Los Angeles:				
Diphtheria	9	3	2	14
Typhoid		2		2
				16
Total number of examinations.....				228

Division of Preventive Therapeutics.

Pasteur Treatment for the Prevention of Rabies by the State Hygienic Laboratory during the Month of April, 1913.

	Treatment commenced.	Treatment completed.
Main laboratory at Berkeley.....	5	8
Northern branch at Sacramento.....	3	1
San Joaquin Valley branch at Fresno.....		3
Southern branch at Los Angeles.....		
Laboratory of Sacramento Board of Health, by deputized bacteriologist	1	1
Laboratory of San Francisco Board of Health, by deputized bacteriologist	8	14
Laboratory of Los Angeles Board of Health, by deputized bacteriologist		1
Laboratory of Letterman General Hospital, Presidio, by deputized bacteriologist		1
	17	29

Public Health Instruction.

Participation in Instruction in Public Health during April, 1913.

Main Laboratory at Berkeley:	
Bacteriological instruction outfits sent out.....	3
Bacteriological instruction outfits in use.....	23
Lectures or talks by the Director.....	3
Lectures or talks by the Chief Bacteriologist.....	1

Division of Epidemiological Investigations.

Epidemiological Investigations during April, 1913.

Main Laboratory at Berkeley:	
Special investigations by the Director.....	3
Continuation of the investigation into the methods of spread of epidemic poliomyelitis.	
Beginning of an investigation into the methods of sterilization of library books.	
Beginning of an investigation into the bactericidal efficiency of ozone machines.	
Special investigation by the Assistant Bacteriologist.....	1
Continuation of the study of the virulence of diphtheria bacilli isolated from the throats of carriers.	

Examination of Ice for Colon Bacilli.

(Bacteriological examinations of seven samples of ice, officially taken by an inspector for the State Food and Drug Laboratory. Undertaken as part of a larger investigation of the State Food and Drug Laboratory.) Report of chemical examination attached.

On September 17, 1912, Dr. Martin Regensburger telephoned to the State Hygienic Laboratory and requested that bacteriological and chemical analyses be made of samples of commercial ice with the object of detecting any pollution which might be present. It was feared that pollution of ice was responsible for some of the typhoid cases existing in the bay region.

Six official samples were secured by an inspector of the State Food and Drug Laboratory. Each sample of ice was brought to the Laboratory as a large cake. A portion of the inner part was taken. The pieces were rinsed with sterile water and were allowed to melt in a sterile container. The sample thus procured was examined according to the standard methods of water analysis of the American Public Health Association. The bacterial count or organisms which developed on agar plates incubated at 37° was determined in each instance and

tests were made in all cases for the presence of colon bacilli. The detailed results of the examinations are as follows:

Sample No. 1. Ice from Union Merchants Ice Delivery Company, 656 Bryant street, San Francisco, taken October 3, 1912, at 9.30 a.m. This ice is said to be natural ice from a lake at Boca, California. The sample was taken from a car on the track in San Francisco, by M. O. Alexander, inspector. Bacterial count from enumeration of agar plates was found to be 250 per c.c. In glucose bouillon fermentation tubes no gas was produced even when 1 c.c. of the water was added. In lactose bile no gas was produced for 10 c.c. of the water. The bacteriological examination shows absence of sewage contamination.

Sample No. 2. Ice from the Consumers Ice Company, 436 First street, San Francisco. Sample taken on October 4, 1912, at 9.30 a.m. from the storehouse. The ice is said to be made from distilled water. Collected by M. O. Alexander, inspector for the Food and Drug Laboratory. The count from agar plates was 350 per c.c. No gas was produced by 1 c.c. of the water in glucose bouillon fermentation tubes or by 10 c.c. in lactose bile; therefore our tests showed the absence of colon bacilli in reasonable quantities of the ice.

Sample No. 3. Ice from the National Ice and Cold Storage Company, Kansas and Division streets, San Francisco. Sample was taken October 7th, at 9 a.m. by Mr. M. O. Alexander, inspector for the Food and Drug Laboratory. The ice was said to be distilled water ice and was taken from the storehouse. The bacterial count made as in the previous samples was 110 per c.c. The absence of colon bacilli was shown as in the previous samples.

Sample No. 4. Ice from the Merchants' Ice and Cold Storage Company, Sansome and Lombard streets, San Francisco. Sample taken by Mr. M. O. Alexander on October 8, 1912, at 9 a.m. The bacterial count made as in previous samples was 80 per c.c. The absence of colon bacilli was proved as in the other samples.

Sample No. 5. Ice from the Oakland Ice and Cold Storage Company, Oakland, California. Sample taken by Mr. M. O. Alexander, on October 9, 1912, at 9.30 a.m. from the storehouse. It was claimed that the ice was made from distilled water. The bacterial count made as in the previous samples was 17 per c.c. Absence of colon bacilli was proved as in the other cases.

Sample No. 6. Ice from the National Ice and Cold Storage Company, 470 Second street, Oakland, California. Sample taken by Mr. M. O. Alexander, from the warehouse, on October 10, 1912, at 1.30 p.m. Bacterial count made as in the previous samples was 120 per c.c. The absence of colon bacilli was proved as in the other examinations.

Sample No. 7. Ice from the National Ice and Cold Storage Company, Sixtieth and Lowell streets, Oakland, California. Sample taken from the storehouse by Mr. M. O. Alexander, inspector for the State Food and Drug Laboratory. The bacterial count was 22 per c.c. No gas was produced in amounts of the water up to 1 c.c. This proves the absence of colon bacilli and of sewage pollution.

The bacteriological examinations of the seven samples of ice showed that they were all free from colon bacilli and therefore did not contain sewage pollution in appreciable amounts.

REPORT OF THE BUREAU OF FOODS AND DRUGS.

M. E. JAFFA, Director.

The regular routine work in connection with the analysis and examination of foods and drugs has been carried out at the State Food and Drug Laboratory during the month of March, 1913.

About ninety samples of foods and drugs were received at the Laboratory. Among the items of interest might be mentioned the examination of chocolates and cocoa. It is evidenced from the correspondence that there is still misunderstanding in the minds of some in connection with the proper labeling of chocolate and cocoa, and for the purpose of clearing up the situation, it is thought best to reprint the Food Inspection Decision bearing on this subject.

Food Inspection Decision 136.

LABELING OF CHOCOLATE AND COCOA.

After consideration of the evidence submitted in regard to the meaning of the terms "chocolate" and "cocoa," the Board of Food and Drug Inspection has reached the conclusion that the definitions laid down in the "Standards of Purity for Food Products," adopted by the Committee on Food Standards, Association of Official Agricultural Chemists, and printed in Circular No. 19, Office of the Secretary of Agriculture, are substantially correct. By these definitions the names "chocolate," "plain chocolate," "bitter chocolate," "chocolate liquor," and "bitter chocolate coatings," are applied to the solid or plastic mass obtained by grinding cocoa nibs without the removal of fat or other constituents except the germ, containing not more than three (3) per cent of ash insoluble in water, three and fifty hundredths (3.50) per cent of crude fiber, and nine (9) per cent of starch, and not less than forty-five (45) per cent of cocoa fat.

"Sweet chocolate" and "sweet chocolate coatings" are terms applied to chocolate mixed with sugar (sucrose), with or without the addition of cocoa butter, spices, or other flavoring materials, and contain in the sugar and fat-free residue no higher percentage of either ash, fiber, or starch than is found in the sugar and fat-free residue of chocolate.

Cocoa, and powdered cocoa, are terms applied to cocoa nibs, with or without the germ, deprived of a portion of its fat and finely pulverized, and contain percentages of ash, crude fiber, and starch corresponding to those in chocolate after correction for fat removed.

Sweet cocoa, and sweetened cocoa, are terms applied to cocoa mixed with sugar (sucrose), and contain not more than sixty (60) per cent of sugar (sucrose), and in the sugar and fat-free residue no higher percentage of either ash, crude fiber, or starch than is found in the sugar and fat-free residue of chocolate.

Cocoa nibs, and cracked cocoa, are the roasted broken seeds of the cacao tree freed from shell or husk.

Milk chocolate and milk cocoa, in the opinion of the Board, should contain not less than 12 per cent of milk solids, and the so-called nut chocolates should contain substantial quantities of nuts. If sugar is added, for example, to milk chocolate, it should be labeled "sweet milk chocolate," "sweet nut chocolate," etc.

When cocoa is treated with an alkali or an alkaline salt, as in the so-called Dutch process, and the finished cocoa contains increased mineral matter as the result of this treatment, but no alkali as such is present, the label should bear a statement to the effect that the cocoa contains added mineral ingredients, stating the amount. Cocoas and chocolates containing an appreciable amount of free alkali are adulterated. In the opinion of the Board, cocoa not treated with alkali is not soluble in the ordinary acceptance of the term. Cocoa before and after treatment with alkali shows essentially the same lack of solubility. To designate the alkali-treated cocoa as "soluble" cocoa is misleading and deceptive.

The list of foods and food products examined comprise jellies, beverages, candies, canned goods, meat products, and as just indicated, chocolates and cocoas.

No Food Inspection Decisions have been received at the Laboratory during the past month.

The subjoined list of Notice of Judgments is at hand from the Department at Washington, and any interested parties wishing copies of the same, should address the Director of State Food and Drug Laboratory, University of California, Berkeley, California.

Nos. 2084, 2090, 2100—Adulteration of Candy.

No. 2086—Adulteration of Eggs.

No. 2087—Adulteration of Figs.

No. 2088—Misbranding of Claret Wine.

No. 2089—Adulteration and Misbranding of Apricot Cordial.

No. 2090—Adulteration and Misbranding of Powdered Stramonium Leaves.

No. 2091—Alleged Adulteration and Misbranding of Powdered Belladonna Leaves.

No. 2094—Misbranding of Stomach Bitters, Adulteration and Misbranding of Extract of Peppermint; Misbranding of Cordial.

No. 2095—Adulteration and Misbranding of Oysters.

No. 2096—Misbranding of Wine.

No. 2097—Misbranding of Rice.

No. 2098—Adulteration and Misbranding of White Pepper.

Nos. 2103, 2108—Adulteration and Misbranding of Lemon Extract.

No. 2104—Misbranding of Salad Dressing and Meat Sauce.

No. 2105—Adulteration of Evaporated Eggs.

No. 2106—Misbranding of Dr. Bennett's Wonder Oil.

No. 2107—Adulteration of Evaporated Eggs.

No. 2109—Adulteration and Misbranding of Turpentine.

No. 2110—Adulteration of Evaporated Eggs.

Nos. 2111, 2113—Adulteration of Oysters.

No. 2112—Adulteration and Misbranding of Extract of Nutmeg.

No. 2114—Misbranding of Stock Feed.

No. 2115—Adulteration of Wild Cherry Phosphate.

No. 2116—Adulteration and Misbranding of Peppermint Extract.

No. 2117—Misbranding of Dr. Puslock's Cold Push Treatment No. 12.

No. 2118—Adulteration of Candy Bantams.

Nos. 2119, 2120, 2124—Adulteration of Tomato Pulp.

No. 2121—Misbranding of Olive Oil.

No. 2122—Misbranding of Molasses.

Nos. 2123, 2141—Adulteration of Oil of Rosemary Flowers.

No. 2125—Adulteration of Wheat.

No. 2126—Adulteration of Apple Chops.

No. 2127—Adulteration of Tomato Sauce.

No. 2128—Adulteration and Misbranding of Coffee.

No. 2129—Adulteration of Oil of Lavender Flowers.

No. 2130—Adulteration and Misbranding of Vanilla Extract.

No. 2131—Adulteration of Dried Eggs.

No. 2132—Adulteration and Misbranding of Graham Flour.

No. 2133—Adulteration and Misbranding of Oil of Lavender Flowers.

No. 2134—Alleged Adulteration and Misbranding of Canned Corn.

No. 2135—Adulteration and Misbranding of Extract of Lemon Peel, Extract of Orange, and Extract of Vanilla.

No. 2136—Adulteration of Sassafras Oil.

No. 2138—Misbranding of Kummel.

No. 2139—Adulteration and Misbranding of Shaco-Kauphy.

No. 2140—Adulteration and Misbranding of Witch Hazel.

No. 2143—Misbranding of Lemon Extract, Vanilla Extract, Almond Extract, and Orange Extract.

Nos. 2144, 2150—Adulteration of Prunes.

No. 2145—Misbranding of Vanilla Flavor.

No. 2146—Misbranding of Pistachio Flavor, Adulteration and Misbranding of Peppermint Flavor, and Misbranding of Violet Flavor.

No. 2147—Adulteration of Oil of Cajaput.

No. 2148—Adulteration and Misbranding of Catsup.

No. 2149—Adulteration and Misbranding of Linseed Oil.

Cases Ordered Referred to District Attorneys April 5, 1913.

Article.	Offense.	Manufacturer or jobber.	Accused dealer.	Locality.
Royal Macaroni----- Witch Hazel----- Cognac Type----- Chopped Meat-----	Mislabeled. Sample is short weight----- Mislabeled. Contains alcohol not declared----- Mislabeled. Label deceiving and misleading. Adulter- ated. Water substituted for cognac. Adulterated. Contains sulphur dioxide, over 600 mg. per kilo.	Splivalo & Co.----- ----- ----- -----	(Protected by guaranty)--- E. F. Becker----- Red Ribbon Wine Co., (Chas Saddler, Prop. Saratoga Market-----	San Francisco. Los Angeles. Los Angeles. San Jose.
Frankfurter Sausage-----	Mislabeled. Contains cereal not declared. Adulterated. Cereal substituted for sausage. Contains non-permis- sible coloring matter.	-----	Lesser Bros. & Co., Inc.---	Oakland.
Bologna Sausage----- (Own make.)	Mislabeled. Contains cereal not declared. Adulterated. Cereal substituted for sausage.	-----	C. F. Hornung, Prop., Eagle Meat Packing Co.	San Francisco.

DEPARTMENT OF BUREAU OF PUBLICATIONS OF HEALTH INFORMATION.

GUY P. JONES, Acting Director.

At this season of the year vacations are being planned by most of the citizens who can afford the luxury, and a few are already enjoying their annual rustication. For the benefit of campers who desire to learn of methods for building a sanitary camp, this Bureau has some publications containing such information, which will be sent free of all cost to any who request it. These publications deal with the disposal of wastes, cesspools and water supply; they are designed for the use of those who may desire to build a small temporary camp, and also for those who may desire to establish a large permanent camp, or for summer resorts.

The approaching season is the time when most of the cases of typhoid fever that occur in the State are contracted and by far the greater majority of them find their origin in the poor sanitation of camps and summer resorts. Too great care in choice of drinking water and in the disposal of waste, can not be observed. It is never safe to drink from a running stream if a dwelling house is located near its banks.

LIST OF COUNTY HEALTH OFFICERS.

County.	Health officer.	Address.
Alameda	Dr. C. L. McKown	Niles
Alpine	County Recorder Frank Smith	Markleeville
Amador	Dr. E. E. Endicott	Jackson
Butte	Dr. L. Q. Thompson	Gridley
Calaveras	Dr. Irwin B. March	San Andreas
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Contra Costa	Dr. W. S. George	Antioch
Del Norte	Dr. E. M. Fine	Crescent City
El Dorado	Dr. L. M. Leisenring	Placerville
Fresno	Dr. G. L. Long	Fresno
Glenn	Dr. J. A. Randolph	Willows
Humboldt	Dr. Carl T. Wallace	Eureka
Imperial	Dr. Virgil McCoombs	El Centro
Inyo	Dr. I. J. Woodin	Independence
Kern	Dr. G. M. Bumgarner	Bakersfield
Kings	Dr. Ralph Motherol	Hanford
Lake	Dr. W. E. Upton	Kelseyville
Lassen	Dr. R. W. T. Garner	Susanville
Los Angeles	Dr. E. O. Sawyer	Los Angeles
Madera	Dr. Mary R. Butlin	Madera
Marin	Dr. J. H. Kuser	Novato
Mariposa	Dr. F. W. Gallion	Mariposa
Mendocino	Dr. J. Liftchild	Ukiah
Merced	Dr. J. H. Mudd	Merced
Modoc	Dr. John Stille	Alturas
Mono	Dr. R. A. Cushman	Bridgeport
Monterey	Dr. Garth Parker	Saltinas
Napa	Dr. E. G. Smart	Napa
Nevada	Dr. Carl P. Jones	Grass Valley
Orange	Dr. John Wehrly	Santa Ana
Placer	Dr. J. S. Wheeler	Roseville
Plumas	Dr. F. D. Walsh	Quincy
Riverside	Dr. George E. Tucker	Riverside
Sacramento	Dr. Hugh Beattie	Elk Grove
San Benito	Dr. J. M. O'Donnell	Hollister
San Bernardino	Dr. Philip M. Savage	San Bernardino
San Diego	Dr. O. G. Wicherski	San Diego
San Francisco	Dr. R. G. Brodrick	San Francisco
San Joaquin	Dr. H. C. Peterson	Stockton
San Luis Obispo	Dr. H. M. Cox	San Luis Obispo
San Mateo	Dr. W. G. Beattie	Colma
Santa Barbara	Dr. J. C. Bainbridge	Santa Barbara
Santa Clara	Dr. William Simpson	San Jose
Santa Cruz	Dr. W. H. Keck	Santa Cruz
Shasta	Dr. F. Stabel	Redding
Sierra	Dr. R. B. Davy	Downieville
Siakiyou	Dr. F. J. McNulty	Yreka
Solano	Dr. S. G. Bransford	Suisun
Sonoma	Dr. P. A. Menery	Santa Rosa
Stanislaus	Dr. J. L. Hennemouth	Modesto
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Tehama	Dr. W. F. Maggard	Cornaling
Trinity	Dr. D. B. Fields	Weaverville
Tulare	Dr. W. A. Preston	Visalia
Tuolumne	Dr. Wm. Lyman Hood	Sonora
Ventura	Dr. A. A. Maulhardt	Oxnard
Yolo	Dr. W. J. Blevins	Woodland
Yuba	Dr. J. H. Barr	Marysville

LIST OF CITY HEALTH OFFICERS.

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Alameda.....	Dr. A. Hieronymus	Kernville.....	_____
Albany.....	Dr. F. R. Woolsey	King City.....	_____
Alhambra.....	Dr. F. E. Corey	Kingsburg.....	_____
Alturas.....	Dr. John Stille	Lakeport.....	Jabez Banks
Alviso.....	_____	Larkspur.....	_____
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Biggs.....	Dr. O. C. Hawkins	Madera.....	_____
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Jackson.....	George Hambrie	Sanger.....	_____
Kennett.....	Dr. J. P. Sandholdt	San Jose.....	Dr. M. E. Hopkins

LIST OF CITY HEALTH OFFICERS—Continued

City.	Health officer	City.	Health officer
San Jacinto.....	Thos. Lloyd	Sonoma.....	_____
San Juan.....	W. R. Moore	Taft.....	E. G. Wood
San Luis Obispo.....	W. F. Cook	Tehachapi.....	L. M. Denison
San Rafael.....	Dr. W. F. Jones	Tracy.....	Dr. J. G. Murrell
San Mateo.....	Dr. S. G. Goodspeed	Tehama.....	_____
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Santa Cruz.....	Dr. H. E. Piper	Ukiah.....	Dr. J. Liftchild
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STANDING NOTICES.

The law makes it the duty of every physician and every citizen who knows of the existence of any case of a communicable disease, to report the same to his local health officer.

The law also requires every physician to report any case of a disease due to occupation. A fee of fifty cents is paid for each report.

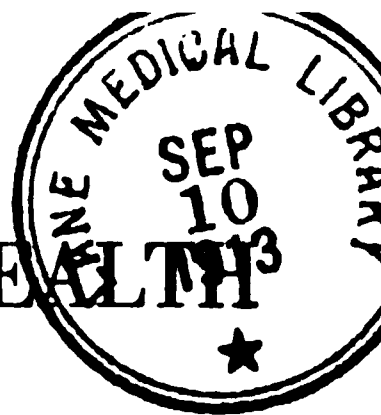
Reports of births, deaths, and marriages are required of certain persons. Your local health officer, or registrar of vital statistics will explain all the details of the law.

The State Board of Health maintains depositories for mailing tubes for sending cultures and specimens to its laboratories at Berkeley for examination. Every physician is invited to avail himself of the nearest depository. A circular of details will be sent upon application.

The California State Board of Health Bulletin is on file in every public library, newspaper office, high school library, and in the offices of county and city health officials. Citizens desiring copies of this issue free of charge should apply to the Secretary, Sacramento.

CALIFORNIA STATE BOARD OF HEALTH

MONTHLY BULLETIN



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JUNE, 1913

No. 12

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THE CALIFORNIA STATE BOARD OF HEALTH.

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2. Bureau of Vital Statistics.

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REGULAR MEETINGS.

The meetings of the California State Board of Health are held regularly the first Saturday of each month, but the quarterly meetings required by law to be held at the Capitol of the State are ordinarily designated as January, April, July, and October.

By courtesy of the University of California the Food and Drug Laboratory and the Hygienic Laboratory are located in University buildings at Berkeley, California.

Address all communications to the

SECRETARY, Sacramento, California.

JUNE BULLETIN.

A REVIEW OF SOME AVAILABLE METHODS OF SEWAGE TREATMENT FOR CALIFORNIA.*

By CHARLES GILMAN HYDE, Consulting Engineer, California State Board of Health.

PRELIMINARY CONSIDERATIONS.

Foreword.

The sewage treatment problem is by no means a simple one. The purification of domestic wastes only, offers the least difficulty; the treatment of mixed wastes (domestic, trade, and street) may occasionally present features of utmost difficulty. Each case is more or less completely a law unto itself. It is folly to suppose, as is so often done, that because town X can dispose of its sewage successfully in some certain fashion, town Y can adopt the same method with a certainty of securing equally satisfactory results. As will be shown forthwith, sewages differ widely in character and composition, not only as between towns, but in a given town as between seasons, days of the week and even hours of the day. The only rational method of attacking the sewage treatment problem for a community wherein sewers are already in operation, is to carefully determine the regimen of sewage flow by measurement and its character by analytical methods. For towns projecting sewerage and sewage disposal works comparisons must be made with other towns having quite similar conditions. There can be no question but that specially trained and experienced sanitary engineers are needed for the design of the more refined and effective works for sewage treatment. The whole subject of sewage disposal is worthy of and demands careful study.

With the exception of a comparatively few places where sewage farming or broad irrigation of sewage has been introduced, almost the only type of sewage purification works to be found in California to-day are septic tanks, so-called, fully "fifty-seven varieties" in all, differing as to shape, relative size, etc. Many of these are operating very indifferently well and some very badly indeed. The general situation shows plainly the need of expert advice to municipalities with respect to general methods and necessary efficiencies from some central advisory authority. To every student of this matter it is clear that this body should be the State Board of Health, which should be furnished with ample funds to develop and maintain a corps of trained and capable sanitary engineers. This has been done with the greatest success and efficiency in Massachusetts for more than twenty years, in Ohio for ten years, and in other states, such as New York and Pennsylvania, during shorter periods of time.

Purpose of article.

It is the purpose of the present article to outline in brief and untechnical terms some of the most available rational processes of sewage treatment adapted and adaptable to California conditions. It is especially hoped to show that there are available processes of treatment of sewage

*Reprinted from the November, 1911, Bulletin of the California State Board of Health.

other than by the septic tank, which has been very much over-exploited in this section. Features of design and construction, being peculiarly engineering problems, will not be discussed in detail.

Character and composition of sewage.

A fundamental characteristic of sewage, and one which bears immediately upon the sewage treatment problem, is that it consists of two very definite and distinct parts, namely, a conveying liquid and suspended solids. Sewage is the water supply of the community—except that portion which is used on lawns, gardens, etc., and which does not reach the sewers—conveying fecal, bath, kitchen, laundry, industrial, street, and other wastes. The conveying liquid is usually rich in dissolved organic matter, most of which is readily decomposable or putrescible and extremely high in its content of bacteria. The sludge is more resistant in composition, but extremely rich in organic matter, very putrescible and high in its content of bacteria. At the usual velocities obtaining in sewers the solids are kept in suspension, but when the velocity is checked and reduced to a very slow forward motion, as in precipitation basins, septic tanks, etc., these suspended solids tend to settle from the sewage, forming a sludge, and leaving a supernatant, milky, fairly turbid liquid. In this liquid are collodial substances, on the border-line between solution and suspension, which will not settle until changed in character.

Messrs. Kinnicut, Windslow, and Pratt have very clearly exhibited in tabular form the general character of the sewage of an American residential town as respects solid matter, as follows:

Solid matter, 200-800 parts per million.	{ Inoffensive, mineral, 50 per cent In suspension, 25 per cent. Offensive, vegetable and animal, 50 per cent In solution, 60 per cent. In suspension, 40 per cent.	{ In solution, 75 per cent. In suspension, 25 per cent.

All sewages are very unstable, and their composition at any time is determined not merely by the character of the initial fresh, raw product, but also by the extent of the changes which have been wrought therein, mainly by the action of bacteria but partly by chemical action. Due to these changes, which arise or set about as soon as sewage is received into the sewers, it is to be remembered that the distance and rate of travel may become important factors determining the state of a sewage when it arrives at the disposal works and defining the optimum period of storage in septic tanks, etc.

The character of a municipal sewage varies with the habits of the people as respects the use and waste of water, with climatic conditions, with the amount and character of trade and industrial wastes, with the infiltration of ground-water, etc. In some communities the wastes from a single large industry, such as a cannery, creamery, tannery, brewery, strawboard factory, wool scouring shop, dyeing and cleaning works, etc., may, during certain hours of the day, predominate over all other wastes, changing the character of the sewage very materially. It must be clear, from a consideration of the action and interaction of these principal governing factors, that the character of sewage must be very different in different communities, and in a given community at different seasons of the year, different days of the week, and even different times during the day. A recognition and determination of these differences are essential to success in a sewage treatment problem. The analytical deter-

mination of the character of sewages requires training, experience and equipment. Such work should be done by the State Board of Health for all communities—at any rate for all towns and cities except, perhaps, the largest, which may happen to be provided with their own properly equipped laboratories and trained analysts. It is a striking fact that practically no sewage analyses have been made in California, and virtually nothing is known with respect to the character and composition of the sewages of our municipalities or of the sanitary efficiency of our treatment works.

Disposal by dilution.

Except for those cities and towns situated upon the coast or upon great tidal bodies of water, such as San Francisco Bay, the opportunity for disposal of sewage by dilution is generally lacking in California. Few of our river systems, except perhaps the Sacramento and San Joaquin rivers, yield a sufficiently large and constant discharge to permit of disposing any considerable quantities of sewage therein without creating a nuisance. Experience elsewhere has demonstrated rather definitely that a nuisance will surely be caused if sewage is diluted with less than about twenty volumes of water, while from forty to fifty volumes may in some cases be necessary to certainly prevent a nuisance. Of course, these values refer to low flow, if not to minimum flow, conditions in streams. In the January issue of the Bulletin, Mr. Griswold has discussed the action of self-purification in streams and has presented an outline of the conditions which determine the extent and efficiency of this action. The conditions which may define the term “nuisance” in connection with river pollution are: The formation of deposits of sludge on the banks and in the beds of the streams; the production of turbidity, milkiness, oiliness and discoloration of the water; the formation of gases of decomposition, principally sulphuretted hydrogen, causing very bad odors; the formation from sludge of masses of scum which float upon the water, due to the bubbles of gas contained; the destruction of fish, etc.

But the problem of disposal by dilution is much broader than the mere question of whether, on the one hand, a nuisance will be caused or, on the other, the self-purifying power of the stream will be sufficient to maintain its sightliness and æsthetic character. Of far greater importance are the questions of adaptability to water supply and industrial purposes, the promotion and conservation of the health of residents in the vicinity, and the possibility of indulging in water sports, etc., without undue danger. The rivers of California are of priceless value to the State and its people and should not be made to serve as sewers for the removal of the wastes of an ever-increasing population.

The laws of the State of California with respect to the control of the purity of inland waters are now, thanks to the work of the legislature in its last regular session, quite satisfactory. There are still, however, many things to be accomplished, both from the standpoint of legislative action and from that of administration. It seems clear that broader powers must be given to the State Board of Health together with largely increased funds to provide the machinery for carrying on the work which demands more or less immediate attention.

With respect to the taking of water supplies from streams into which sewage or sewage effluents find their way, a careful review of the situa-

tion by sanitary engineers has led to the following fairly well-crystallized conclusions:

(1) No surface waters receiving sewage or the effluents of sewage treatment works are suitable for water supply purposes without purification.

(2) The discharge of crude or of partially purified effluents into such streams must at all points be well below the limit within which self-purification can readily be accomplished.

(3) All supplies of water derived from sewage polluted streams must be purified in accordance with methods adapted to the particular conditions of the stream in question.

Required degree of sewage purification.

From the preceding discussion it will be seen that the required degree of purification, or, in other words, the efficiency of the removal of the polluting matters in sewage, must be determined in any given case from considerations of the amount and character of the sewage, the regimen of the stream, the self-purifying capacity of the stream, the utilization of the stream for water supply purposes, etc. Different methods of sewage treatment naturally yield different efficiencies, and certain methods of treatment may be modified and adjusted to yield different degrees of purification according to requirements.

METHODS OF TREATMENT.

General classification.

The various available known methods of sewage treatment may be classed in three distinct and important groups, as follows:

(a) Those which remove more or less of the solids, especially the suspended matters, but from which the effluent is chemically unstable and capable of further decomposition and putrefactive changes. Methods in this class may be called "preliminary" or "preparatory."

(b) Those which remove a substantial proportion of the dissolved and suspended mineral and organic matter and which produce an effluent of fairly stable composition requiring only a moderate degree of further oxidation to render wholly stable. These methods may be called "final."

(c) Those which destroy the bacteria, especially the pathogenic or disease-producing bacteria, but which in themselves do not effect any material change in the physical or chemical character of the sewage. These methods may be called "disinfection" methods.

When class (b) methods are used, it has recently been customary to provide some preliminary treatment in accordance with one or more of the methods in class (a). In important cases, especially during the prevalence of epidemics of intestinal diseases, class (c) methods may be applied to supplement the work of either or both class (a) and (b) methods.

"Preliminary" methods of treatment.

(a) The various preliminary or preparatory methods of treatment in vogue to-day, named in order of their general efficiency, from the least to the greatest, in the removal of suspended matters, are as follows:

- (1) Grit removal.
- (2) Screening, coarse and fine.
- (3) Plain sedimentation.
- (4) Straining or roughing.
- (5) Chemical precipitation.
- (6) Septic tank processes { In Cameron type septic tanks.
In Imhoff type septic tanks.
- (7) Contact beds—single.

"Final" methods of treatment.

(b) The various methods of treatment which ordinarily do or may produce effluents of such a stable character as to entitle them to be

classed as "final" methods are the following, named in the order of efficiency of removal of organic matter from the least to the greatest:

- (8) Contact beds—double.
- (9) Trickling, percolating or sprinkling filters.
- (10) Intermittent filtration through sand.
- (11) Broad irrigation or sewage farming.

Disinfection of sewage.

(c) The particular method of disinfection of sewage and sewage filter effluents which is in use to-day in the United States is the following:

- (12) Hypochlorite (bleaching powder) disinfection.

(1) Grit removal.

Grit chambers are designed with a view to remove from sewage the coarser suspended mineral matter which settles rapidly, due to its high specific gravity and mass, and such matters only. These materials should be found only in combined sewages which receive street wastes. In Europe the silt and other coarse materials removable by grit chambers or basins are known as "road detritus." Grit chambers are usually unnecessary in works treating domestic sewage. In the treatment of combined sewages they are of value as preliminary to disposal by dilution and as precedent to subsidence of all types, plain, coagulated, and septic.

Grit chambers should be sufficiently large to intercept the heavy mineral matter and yet so small that no significant proportion of organic matter will be deposited. The capacity should as a rule be such that a net period of storage of at least three minutes is allowed, but the forward velocity should not be less than 5 feet per minute.

In some cases where grit chambers have been constructed in California in connection with septic tanks, they have been made so large that violent septic action, accompanied with excessive scum formation, takes place in them. This is, of course, very undesirable. It is apparent that if grit chambers are needed they should be carefully proportioned and arranged in multiple units, both for purposes of cleaning and with a view to maintain a more or less definite period of subsidence notwithstanding changes in rate of sewage flow.

(2) Screening, coarse and fine.

The object of screening is the removal of the coarser suspended matters in sewage. The modern tendency is toward the use of constantly finer screens, mechanically operated. Screens have always been considered of value in connection with sewage pumping works and inverted syphons. More recently it has been discovered that screening may be of substantial advantage in cases where otherwise untreated sewage is disposed of by diluting in water, or where otherwise unprepared sewage is to be applied directly to a final process such as contact beds, percolating filters, intermittent sand filters or sewage farms. Screens may even be of advantage in connection with the septic process, because of the removal thereby of considerable volumes of light materials which might otherwise float on the surface and unduly increase the amount of scum.

The efficiency of the process depends entirely upon the size of mesh or openings through which the sewage is passed. With ordinary hand-cleaned bar screens from 2 to 10 per cent of suspended matter is removed; mechanically operated self-cleaning sieves may remove as much as from 20 to 25 per cent of the suspended matters. The volume of material removed by bar screens from American sewages is from 2.5

to 6.0 cubic feet per million gallons, while with mechanical sieves this quantity may be from 20 to 40 cubic feet. The amount of moisture contained in the screenings from the finer sieves is greater than in material removed by bar screens.

(3) Plain sedimentation.

By means of plain subsidence in properly designed basins it has been attempted at various places in America and Europe to remove from the sewage the suspended materials or sludge, which have been shown to be a most troublesome element in sewage purification. In practice the period of storage in such tanks varies considerably. The earlier plants were constructed on what is known as the fill and draw principle, but most of the later plants are operated on what is known as the continuous flow principle. In the latter type from six to twelve hours probably represents the range in storage period for American sewages. In properly designed basins of this type from 50 to 75 per cent of the suspended matters may be removed and deposited as sludge at the bottom. The remaining 25 to 50 per cent will ordinarily not settle from the sewage in a very extended period, and therefore the prolongation of the period of storage beyond, say, twelve hours is economically inadvisable. The volume of sludge accumulating in American tanks seems to be from 4 to 6 cubic yards per million gallons of sewage treated. This process, while relieving the sewage of a substantial proportion of suspended solids, nevertheless affords in itself no method of disposal of the sludge as does, in a degree, the septic process. The sludge must be removed from the tanks at frequent intervals and must be separately treated. Under the conditions where plain subsidence would be used, it is evident that the sludge can not be disposed of in currents of water because, if this were a possibility, the crude sewage could be disposed of in the same manner without treatment.

Reviewing California conditions, the writer believes that there are but few situations where plain subsidence can be satisfactorily utilized as a process of sewage treatment. These would seem to be—

(1) In connection with disposal by dilution in tidal waters capable of receiving the settled sewage without producing a nuisance, and where the sludge can be taken to sea in vessels, as at Manchester and London, England.

(2) In connection with intermittent sand filtration and sewage farming where areas of fairly coarse material, suitable for sludge beds, are available.

(4) Sewage straining or roughing.

Only a few examples of roughing filters for sewage exist in this country or Europe. When provided, it is with the object, of course, of removing the suspended matters by means of rapid straining. This is done either through beds of coke or through sand beds in filters constructed like the rapid sand or mechanical water filter. Coke beds have not proved successful in actual practice, especially in cold climates. Rapid sand filters produce a volume of wash water, highly charged with the organic or mineral impurities of the sewage, which may amount to from 3 to 10 per cent of the filtrate. Such wash water requires special treatment which is ordinarily very difficult and expensive. No coagulant is used in connection with such straining filters. The process is an expensive one at the best, both as respects construction and operation. *The effluent from such works can be made fully equal to, if not better than, the effluent of plain sedimentation basins, from a sanitary point of view. It is believed that this is not an available process under most California conditions.*

(5) **Chemical precipitation.**

The subsidence in basins of suspended solids, by the use of coagulants of various kinds, was an exceedingly popular method of sewage treatment during a period of some twenty to thirty years prior to the introduction of the so-called biological processes about twelve years ago. A very large number of plants was constructed in England during this time, and a few plants were built in America. By the use of chemicals it was attempted to produce at least a clear effluent, free from suspended matters. This was quite possible, but the sludge problem was rendered ever more difficult to solve, and the effluent, while clearer, was scarcely less putrescible than that resulting from plain subsidence. The amount of sludge created by this process is ordinarily fully fifty per cent greater than with plain subsidence. The efficiency of the removal of suspended matters has usually ranged from sixty to ninety-five per cent. This process is primarily available in California only under the conditions first stated above as the field of application of plain subsidence, namely, in connection with disposal by dilution in situations where the sludge can be taken to sea in vessels.

(6) **The septic process.**

(a) *Cameron type septic tanks.* The characteristic processes involved in the action of septic tanks are not at all different from those which have for a long time been relied upon in connection with the disposal of sewage in leaching cesspools, though, perhaps, without recognition and study until the development of the septic tank called attention to them and offered an explanation for the well-known fact that the sludge from domestic wastes accumulated very slowly, if at all, in such chambers. As a definite treatment, adapted to municipal sewages, the septic process dates back some sixteen years. It was then exploited by Donald Cameron of Exeter, England, who achieved remarkable success in the anaerobic (decomposition) treatment of a portion of the sewage of that city. In his experimental tanks the sludge accumulated very slowly and was so thoroughly changed in composition, due to the long continued action of the bacteria (and other organisms), that it became like humus, and in one year amounted to perhaps one fifth, only, of the solids deposited in the tank. The effluent contained about seventy per cent of the organic matter in the raw sewage. These results were so remarkable as to attract the widest attention, and similar experiments were inaugurated in many different places with corresponding success. On the basis of these studies, the septic process was adopted for the treatment of municipal sewage with almost hysterical enthusiasm, not only in England, but on the continent of Europe and in America. In America, especially, the septic tank wave rolled from the Atlantic to the Pacific seaboards, leaving in its wake a huge number and variety of septic tanks. Some of these, well designed and adapted to local conditions, have achieved all that could reasonably be expected of them, but many others have absolutely failed to perform the work which early experiments would indicate as possible. Failures have been due to a variety of causes, perhaps more than any others to ill adaptation to the specific conditions met with in specific cases, and to a general ignorance of the true principles involved in anaerobic sewage treatment. That the process during the past ten years has been over-exploited and that its general efficiency has been greatly exaggerated are apparent to-day,

when, in view of many failures, an actual distrust of the process has been brought about. The statement has been widely circulated among laymen that the effluent of septic tanks is quite suitable for drinking purposes, all of the impurities of the sewage being removed thereby. During the past few years the writer has received many inquiries regarding the truth of this statement.

The septic tank process is primarily aimed at the removal of sludge. It is by no means a final process, inasmuch as the effluent is almost invariably somewhat turbid, always extremely putrescible and rich in unstable dissolved organic matter.

A review of the principles and results of operation of the septic tank of the Cameron type would appear to justify the following more important conclusions:

(1) The average removal of suspended solids from the raw sewage by the most successful tanks may vary between thirty-five and eighty-five per cent, averaging perhaps fifty to sixty per cent. At times of active gas formation the septic effluent may contain a larger amount of suspended matter than the entering sewage. As the sludge accumulates in the tank the condition of the effluent, as respects turbidity and suspended matter, is apt to gradually become less satisfactory.

(2) In some tanks the gassification and liquefaction of sludge almost keeps pace with the rate of accumulation, so that a period of several years may elapse between enforced cleanings. In many other cases the tanks require frequent cleaning, say from two to twelve times per year. The volume of sludge digested, i. e., liquefied and gassified, would seem to ordinarily vary between ten and sixty per cent. The average value is certainly not over forty per cent. Septic sludge is normally less offensive than the sludge from plain sedimentation or chemical precipitation tanks.

(3) The period of storage in septic tanks must be carefully adjusted to conditions. Weak sewages seem to require a shorter storage period than strong sewages. Moreover, the condition of the sewage, whether fresh or comparatively stale when delivered to the tank, is a controlling factor. The gross capacities of the tanks which have been apparently well designed and which have operated with more or less success have been equivalent to from eight to forty-eight hours of sewage flow. As a rule, the period should be not be greater than twenty-four hours nor less than twelve hours, except possibly with weak or stale sewages. Multiple units are very desirable in order that the storage period may be controlled to give optimum results.

(4) As compared with fresh settled sewage the septic effluent, especially that resulting from a too-long storage in the tank, is probably more difficult to oxidize in final processes of sewage treatment, such as the trickling filter, contact bed, intermittent sand filter or sewage farm.

(5) The septic process does not seem to afford an efficient means of destruction of pathogenic bacteria. Recent investigations would seem to permit of the conclusion that septic effluents are only less dangerous than crude sewage to the extent of the efficiency of removal of organic matter.

(6) The climatic conditions in California are especially favorable to the septic process and, in fact, to all biological processes of sewage treatment.

It must be recognized that the septic tank, like other engineering works of this nature, can not be a standardized apparatus. It is one which must be carefully proportioned, designed and adapted to the governing conditions of each case. Probably special consideration must be given to details of design in those sections of the State where very high summer temperatures prevail. Matters of design are beyond the scope of this paper.

Federal patents on the septic tank process have been granted to the Cameron Septic Tank Company, and all cities, towns, and institutions in the United States which have constructed septic tanks have been warned of infringement and threatened with suits. The status of this litigation is so familiar to the people of California that further reference to this subject is considered unnecessary here.*

*The full details of this litigation in California have been previously published in the March, 1910, number of this Bulletin.

(b) *Imhoff type tanks.* In recent years very many investigations and experiments, looking to a more successful solution of the sludge problem than is offered by the septic tank, have been under way. In consequence, various schools of workers, holding different views of the problem, have developed. Some of these schools believe that successful sewage treatment is primarily a physical process involving sedimentation and surface contact, while others hold that the bio-chemical actions are of extreme, if not of fundamental, importance. As a matter of fact, there is truth in both points of view; and it is to be expected that in the future the relative value of sedimentation and surface contact, of bacterial action, and of the activities of larger organisms, such as worms, arachnida, etc., will become manifest.

Aside from its lack of efficiency in many cases, objections to the Cameron type septic tank have been raised on the ground that the effluent is too stale and difficult to treat by oxidation processes, that the odor is frequently obnoxious, and that the sludge is not thoroughly digested and is sometimes quite offensive, although, as stated above, not generally so offensive as that from plain and coagulated subsidence.

During the past two or three years there has been developed in the Emscher Valley, in Germany, a type of tank which seems to overcome most, if not all, of the principal objections to the Cameron type of septic tank. This process was suggested by Dr. Imhoff, and has been strongly advocated by the Emscher Drainage Board. The tank is variously known as the Emscher, Ems, Essen, and Imhoff tank.

In brief, the process consists in passing the sewage at a low velocity through comparatively shallow V-shaped tanks, or chambers, whose sides are sufficiently steep so that the deposited solids settle to the bottom of the V, where they pass through suitably arranged slots into a deep chamber below. The period of storage of the main bulk of the sewage is comparatively brief, say two to four hours. The period is so short that septic action does not become established, yet the rate of travel is sufficiently slow so that a substantial proportion of the suspended matter is deposited. The sewage may then be passed to other treatment devices or to points of discharge in watercourses, as the case may be. It will be seen that the sewage does not have a chance to become stale in the tanks nor does it come in contact with decomposing sludge.

In the lower tank, into which the sludge settles through the slots above referred to, a slow digestion takes place through septic and other action. At frequent intervals portions of the thoroughly digested sludge are drawn off from the bottom of the tank by special piping arrangements and fresher sludge takes its place. The sludge, thoroughly rotted by the action of the bacteria, worms, etc., is no longer sticky and greasy, but humus-like. Due to the downward motion of the sludge, caused by drawing off small quantities at frequent intervals, any toxins which may be produced locally by bacterial action, and which would tend to inhibit such action, are apparently distributed and diffused so that bacterial activity is maintained and the maximum amount of solids is liquefied or gassified. The gas is taken from the top of the lower tank through specially arranged pipes or openings. The sludge is either discharged upon special sludge beds of coarse material, where in favorable weather it drains quickly and soon reaches a state permitting of easy removal, or it may be buried in trenches in agricultural land.

The efficiency of this process under American conditions can only be inferred from certain experimental results. The results obtained at Philadelphia during one year of operation of experimental tanks have been very satisfactory. Tanks of this type have been recommended by Messrs. Hering & Fuller of New York City, and are about to be installed for the treatment of the sewage of Atlanta, Ga.

The California climate would undoubtedly be very favorable to this process. In general, this method of treatment promises well, and should be investigated under local conditions. In a short while considerable data for American sewages will be available. It is evident that the proportioning of these tanks, both with relation to the period of storage of the sewage to effect a deposition of the solids and of the sludge to bring about thorough digestion, is a matter of great importance and must be worked out for various climatic conditions as well as different sewages.

The septic process, as carried out either in the Cameron type or in the Emscher type of tank, but especially in the latter, has at present two distinct fields of usefulness: first, it constitutes an effective means of preparation for any final process which can be better conducted with a sewage from which the suspended solids are more or less completely removed; second, it may be employed where disposal by dilution is permissible if the source of unsightly sludge and scum is removed.

(7) Contact beds, single.

All of the methods or processes of treatment which have been previously discussed have been aimed primarily at the separation from the sewage of the suspended matters, from the coarsest to the very finely divided. Only secondarily have chemical changes in the liquid portion of the sewage been intentionally brought about. In contact beds, however, we have a process which not only removes or changes the character of the suspended solids but which purifies the sewage by bio-chemical action. The action is both anaerobic (liquefying and gassifying) and aerobic (oxidizing), principally the latter. The process, in its physical, chemical and biological actions, is exceedingly complex, although the works required for carrying it out are extremely simple.

Briefly stated, a contact bed comprises a water-tight basin from three to four feet in depth, filled with some hard and fairly durable granular material of a uniform size suited to the particular requirements of a given case, or with horizontal layers of slates or slabs laid about two inches apart. Contact beds must be thoroughly underdrained and the distribution of sewage over the surface must be such as to prevent local clogging.

As usually operated, the beds are filled with sewage in from one to two hours, are kept full of sewage from two to three hours, are emptied in from one to two hours, and remain empty for from four to six hours. Of course, deviations from this general regimen are frequent. The rate of operation of single contact beds is generally equivalent to not less than 600,000 gallons per acre per day, and is seldom greater than 1,000,000 gallons. The loss of head is seldom less than four feet nor more than six feet with beds of the depths stated above.

Single contact, *i. e.*, the use of a single set of contact beds, does not usually produce a stable effluent and, therefore, is to be regarded as a preliminary process in accordance with the distinction adopted for the purposes of the present discussion. The purification which may be

expected from single contact, as measured by the removal of suspended solids, may vary between sixty and seventy-five per cent, and as measured by the removal of organic matter between fifty and sixty per cent.

Single contact is seldom employed as a preparatory treatment; it is occasionally employed in conjunction with septic tanks or other preparatory treatments as a final process. Such plants are in operation at Plainfield, N. J., and Mansfield, Ohio, and are said to be giving satisfactory results. California climatic conditions are favorable to this process, and there are doubtless some circumstances under which it can be used to advantage. As a general statement, it may be said that the septic process, perhaps especially as conducted in the Emscher tank, is cheaper and gives an almost equally effective preparatory treatment, yielding a greatly improved but putrescible effluent. Although sometimes employed as a final method of treatment, as stated above, it does not appear that contact beds have a great field of usefulness for this purpose. As respects the destruction of pathogenic bacteria, it is believed that contact beds are not more efficient than other processes giving the same efficiency in the removal of organic matter.

(8) Contact beds, double.

Double contact implies the operation of two sets of contact beds arranged in tandem. As a rule, the material in the beds utilized for the second contact is considerably finer than in the first. The process is capable of yielding a non-putrescible effluent, low in suspended matters though somewhat discolored, and one which can be discharged without offense into very small streams. The net rate of operation, referred to the total superficial area of both sets of beds, is seldom greater than 500,000 gallons per acre per day nor less than 300,000 gallons. The process is not as flexible as to rates of operation as are certain others to be later described. A head of from six to ten feet is normally required for this process. The total efficiency, as measured by the removal of suspended solids, has been found to vary from eighty to nearly one hundred per cent; as measured by the removal of organic matter, the efficiency usually ranges between seventy and eighty-five per cent. One very unfavorable feature of contact beds is that they gradually become clogged with resistant organic and mineral matter, so that removal and cleaning of the filling material are required. This is, of course, expensive and is especially undesirable where labor costs are high.

Climatic conditions in California are favorable to this process. It is capable of treating crude sewage, especially that from which the coarser suspended matters have been removed by effective screening. As compared with intermittent sand filters or sewage farming, from the standpoint of efficiency, the process yields distinctly inferior results. As compared with percolating or trickling beds, contact beds are less compact and are more costly. They are, however, less conspicuous, the odor attending the process is less pronounced and they do not breed flies as trickling filters are reported to do. This process may have a field of usefulness in special cases under California conditions.

(9) Trickling, percolating, or sprinkling filters or beds.

Trickling or percolating filters have been gradually evolved through experiments conducted during the past twenty years. For ten years the process has been in practical operation and for four or five years

the mode of action has been fairly well understood, and the process has been a demonstrated success under conditions to which it is adapted and where the works have been properly designed. These filters consist essentially of beds of coarse-grained, durable material resting upon some efficient system of underdrains in or on an impervious floor. If above ground, the beds may be surrounded by walls of concrete, by open brick work or by banked-up filling material; if in excavation, the side walls may be vertical, of concrete, brick or stone, or sloped at the angle of repose of earth and paved or concreted. The size of material, the depth of bed and the rate of operation are all interdependent factors and all relate closely to the strength and character of the sewage. It is of fundamental importance that the sewage be sprinkled or deposited on the surface of the beds in thin, thoroughly aerated films. In practice, the depth of bed generally ranges between 4 and 6 feet, the size of material from $\frac{1}{8}$ of an inch or $\frac{1}{2}$ of an inch up to $1\frac{1}{4}$ inch or 4 inches, and the rate of operation from perhaps 1.0 to 2.5 million gallons per acre. The loss of head is rarely less than 8 feet, and it may be considerably more. It is to be observed that these rates of operation are far in excess of any that can be obtained with other final processes of sewage treatment, especially with intermittent sand filters and broad irrigation. Generally speaking, the best results are not secured with the application of crude sewage unless it is especially weak and has been thoroughly screened, but rather with sewages from which a substantial percentage of suspended matter has been removed by preparatory treatment.

This process is wholly one of oxidation, in which absorption, bacterial action and the activities of larger organisms all play a conspicuous part. The effluent of properly designed and operated works is non-putrescible or stable in character, and may be discharged into the smallest streams. The effluent is not clear, but contains humus-like particles which settle rapidly and which in weight are practically equivalent to the weight of solids applied to the filter. In other words, the trickling bed does not accumulate solids as does the contact bed. As measured by the reduction of organic matter, the general efficiency of the process has ranged in England between eighty and ninety-five per cent. In the United States a much lower efficiency has been obtained, both in experimental and in large municipal plants. Nevertheless, the effluent in all cases has generally been stable and thoroughly suitable, after the settlement of suspended matters, to discharge into streams. In respect to the removal of organic matter, this process shows decided superiority over the double contact process.

In California the conditions are generally ideal for this process. It should have a wide field of usefulness, wherever compact plants must be erected to operate at comparatively high rates in more or less thickly settled districts, where sufficient head is available by gravity or pumping and where land would not be available or the conditions right for broad irrigation or sewage farming.

(10) Intermittent sand filtration.

Intermittent sand filtration is by far the best known and most thoroughly studied process of sewage treatment in America. For more than twenty years it has been constantly under investigation by the Massachusetts State Board of Health, both in experimental plants and in municipal plants, on a large scale. Many sewage purification plants

of this type are in operation in Massachusetts, Ohio, and other states where suitable materials are naturally available. The process is one of nitrification or oxidation, and seems, in a general way, to epitomize the natural purification which the soil effects of all impurities deposited in a film thereon. As usually carried out, areas of suitably porous soil are selected and the top soil is removed and placed in embankments between beds, making these of a size best adapted to the rate of sewage flow. These beds are underdrained with tiles if the water-table is not naturally low. Where suitable material is not found *in situ*, the beds may be constructed of especially selected and deposited materials, but such construction, of course, increases the cost greatly. In operation, the sewage is applied in rotation rapidly to each bed until each is completely covered to a slight depth. The bed is then allowed to drain slowly and to rest for some time thereafter. Meanwhile, other beds are being dosed, drained and allowed to rest. These filters are very sensitive to long-continued overdosing and to lack of aeration, and will not prove efficient if not carefully dosed, cleaned and rested. A great deal of information is available with reference to these matters, and it is considered entirely unnecessary to refer in detail to them here.

If conducted in suitable soils at proper rates very high efficiency may be obtained with intermittent sand filters. At one plant, at least, in the United States, that at Spencer, Massachusetts, the filter attendant regularly uses the effluent as a drinking water supply. The bacterial purification should be fully 99 per cent under favorable conditions. The removal of organic matter should be fully 95 per cent. The effluent is usually of excellent appearance and free from disagreeable odors. The rate of operation varies very widely, according to the character of applied sewage, the porosity of the soil, the temperature conditions, etc. In general, the rate varies between 40,000 and 100,000 gallons per acre per day. Higher rates may be employed with effluents of efficient preparatory treatment works.

It is not probable that this method of treatment will ever find wide application in California, although here, as for other biological processes, the climate is quite ideal, even in the most elevated districts where such plants would in all likelihood be built. Where gravelly or sandy deposits are to be found and where broad irrigation can not be conveniently resorted to, as for small isolated institutions, hotels, summer resorts, camps, etc., this method of purification could be very advantageously employed. Throughout our mountainous districts are many resorts where this method of treatment could be very easily adopted, thereby protecting in an efficient manner the streams which are now being polluted.

(11) Broad irrigation or sewage farming.

In the process of treatment known as broad irrigation or sewage farming the sewage is utilized for the growth of crops in very much the same manner that water would be. The sewage has, however, some slight fertilizing value. In principle this method is not essentially different from intermittent sand filtration, but it is usually conducted at rates from one tenth to one twentieth as great as those employed with intermittent sand filters. It is possible to dispose of sewage by broad irrigation at rates varying from 2,000 to 10,000 gallons per acre per day, depending upon the character of the sewage, the kind of preparatory treatment

which it has received and the character of the soil. As with intermittent sand filters, higher rates of dosing and better results are generally to be obtained with sewages from which the suspended matters have been in part removed by some preliminary treatment. Heavy soils are not naturally adapted to this method of sewage treatment, but they can be utilized if sufficient area is provided so that the rate of application shall be suitably low. The efficiency of treatment, measured by the removal of suspended solids, organic matter and bacteria may, under favorable conditions be very high indeed, perhaps fully as high as with intermittent sand filtration, which yields effluents of greater purity than any other method thus far discussed. In England an extended experience with broad irrigation shows that if the land is naturally unsuited to this treatment, and if the rate of application is too great or the farms improperly manipulated, high efficiencies can not be obtained. In France and Germany very satisfactory results have been obtained on the extremely large sewage farms operating on the sewage from the cities of Paris and Berlin, respectively. Few, if any, data showing the efficiency of sewage farming in the United States are available.

There can be no question but that in an arid or semi-arid district, where soil conditions are suitable and where lands are available, the disposal of sewage by irrigation is the most logical method which can be employed. It would seem to be a criminal waste to discharge sewage into streams or into the ocean when adjacent lands are suffering from lack of moisture. Moreover, the pollution of the streams whose purity would otherwise be preserved is a feature worthy of careful consideration.

In the rainy season it is specially important that sewage farming be carefully conducted, in order that the sewage shall be thoroughly purified and at the same time that the land shall not be super-saturated. It must be impressed upon the municipalities utilizing this method of sewage treatment that sanitary efficiency rather than financial success is to be primarily sought.

In California the sewage of a number of communities is being successfully treated by broad irrigation, both on municipally owned and on privately owned areas. At some places, notably Fresno, considerable competition in securing rights to the use of sewage for irrigation has developed on the part of private landholders.

(12) Disinfection of sewage or effluents from sewage treatment works.

During the past few years a great deal of attention has been devoted to the problem of the treatment of water and sewage to effect the removal of bacterial contamination, especially contamination by disease germs. Various sterilizing or disinfecting agents have been investigated, with the result that all have been found either too difficult or too costly to apply, with the exception of certain salts of copper and certain chlorine compounds. Of these, for most conditions, the hypochlorite of calcium (bleaching powder) has been found to be cheapest and most efficient, although sodium hypochlorite, electrolytically prepared, may be favorable in very large plants under expert supervision in localities where electric power is very cheap. Carefully conducted experiments at various places have demonstrated clearly that the great bulk of dangerous bacteria can be removed from crude sewage or effluents from sewage treatment works at a very moderate expense, especially for the

latter. It is scarcely to be expected that disinfection will be found necessary for effluents from intermittent sand filters or sewage farms, where the bacterial efficiency is already very high. But where effluents from preparatory treatment or rapidly-operated final treatment works, such as contact beds and trickling filters, are discharged into water-courses from which water supplies are derived, or into tidal estuaries from which shellfish are being taken for the markets, it appears that disinfection has a distinct field of usefulness. It is apparent that disinfection is especially necessary when epidemics of intestinal, water-borne diseases prevail in any community disposing of its partially purified or crude sewage in streams utilized for water supply purposes.

SOME GOOD GENERAL REFERENCES ON THE SUBJECT OF SEWAGE TREATMENT.

Text-books.

- Sewage Disposal, by Kinnicutt, Winslow and Pratt, New York, 1910.
- Principles of Sewage Treatment, by Dr. Dunbar, London and Philadelphia, 1908.
- The Design, Construction and Maintenance of Sewage Disposal Works, by H. P. Raikes, London, 1908.
- The Purification of Sewage and Water, by W. J. Dibdin, London and New York, 1903.
- Recent Improvements in Methods for the Biological Treatment of Sewage, by W. J. Dibdin, London, 1907.
- Sewage and the Bacterial Purification of Sewage, by S. Rideal, London and New York, 1906.
- The Sewage Problem, by A. J. Martin, London and New York, 1905.
- The Purification of Sewage, by S. Barwise, London, 1904.

Reports.

- Annual Reports, Massachusetts State Board of Health, since 1890.
- Annual Reports, Ohio State Board of Health, since 1900.
- Report on an Investigation of Water and Sewage Purification Plants in Ohio, State Board of Health, Columbus, Ohio, 1908.
- Report on Sewage Purification at Columbus, Ohio, by G. A. Johnson, Columbus, 1905.
- Reports Royal Commission on Sewage Disposal, London, 1902-1908.

Papers.

- Contributions from the Sanitary Research Laboratory and Sewage Experiment Station of the Massachusetts Institute of Technology, Vols. I-V, 1905-1910.
- The Disinfection of Sewage and Sewage Filter Effluents, by E. B. Phelps, U. S. Geological Survey, Water Supply Paper, No. 229, 1909.
- The Disinfection of Sewage and Sewage Filter Effluents, by E. B. Phelps, Journal of the Association of Engineering Societies, Vol. XLVI, January, 1911.
- A New Method of Treating Sewage, by Dr. Imhoff, Surveyor and Municipal County Engineer, May 21, 1909.
- Some Recent Progress in Sewage Disposal, by Rudolph Hering, American Journal of Public Hygiene, Vol. XX, November, 1910.
- Various articles in Engineering News, Engineering Record, etc.

SEPTIC TANKS.

By N. D. BAKER, Junior Member American Society of Civil Engineers.

Purpose.

The septic process is used for three reasons:

1. To get the sludge or solids out of the sewage so that the liquid part of it may be disposed of by some other means. If this is to be done by broad irrigation or by filtration through sand beds it is essential that the sludge be taken out first to prevent clogging of the distributing ditches or of the filters, as the case may be. The sludge might be removed by plain sedimentation, chemical precipitation, or to some extent by screening, but this leads up to the second purpose of the septic tank; which is—

2. To destroy the sludge. In using any of the other three methods of sludge removal, the great question of sludge *disposal* remains unsolved. The sludge has been taken out but not destroyed. The properly operated septic tank removes a considerable portion of the sludge and also destroys or “digests” a considerable portion.

3. Another purpose of the septic process is to carry the sewage through the first stages of putrefaction, and to render it less likely to create a nuisance when discharged into streams or other bodies of water or on land. It has been estimated that a stream will receive twice as much septic sewage as it will take raw sewage before the point of pollution is reached which will cause a nuisance.

Theory of a Septic Tank.

The septic process differs from others in that here the organic matter in the solids is broken down to simpler substances by the putrefactive or liquefying bacteria. These low forms of vegetable life work best in absence of air, and they use up the dissolved oxygen in the sewage so that the action, if complete, would give an effluent which would contain *no* dissolved oxygen. After these (anaerobic) bacteria have done their work, the sewage needs to have oxygen introduced so that the (aerobic) oxygen-using bacteria may perform their work of oxidization. It is by the activity of these aerobic or nitrifying bacteria that the products of anaerobic action are oxidized and the resulting condition of the sewage rendered stable, *i. e.*, incapable of further putrefaction.

Design and Operation.

Probably in no other branch of engineering work is there a wider range of variation than in the design of septic tanks. The chief objects of design should be: to get a sufficiently long storage of the sewage to complete the septic action and still not have it too long; and to enforce a uniformly slow and diffused flow through the tank so that there will be no parts of it where the sewage remains stagnant. Also to properly proportion the tank so that the surface area shall be sufficient for mat formation. In some tanks series of baffles are introduced to insure uniform flow. In some of these the baffles are vertical, let down from the top and built up from the bottom, while in others the baffles extend into the tank from the sides. Experience indicates that the use of *baffles elsewhere than at the extreme end of the tanks is not to be encouraged.*

Size.—The size should be sufficient to hold the flow for the period of storage desired. In different designs this varies from twelve to forty-eight hours. Perhaps eighteen hours' flow is a good average to use, but the period of storage should be adapted to the condition and character of the sewage. Many of the tanks now in use are rectangular, but there have also been designs made for circular tanks in which the sewage is taken in at the center and discharged around the circumference. (Ref., Engineering Record, vol. 60, page 249.)

Area.—Heretofore this point has not been emphasized, but it is important that there be sufficient area for mat formation. This varies with the total solids in the sewage, and also directly with the number of persons connected with the system. If the area is not sufficient, as might be the case where the flow per capita is small, there will be a continued accumulation of sludge until it gets so thick that the tank has to be cleaned and started again. In tanks of this kind one of the purposes of the septic tank is defeated, for the tank only removes the sludge and does not destroy it. In tanks of good design the surface area varies from one half to one square foot or more per person. The first figure is hardly large enough.

Roofs.—The question of roofing a septic tank has aroused some discussion. On the one hand it is claimed that since it is a bacterial process and since bacteria develop and work best in the dark, a roof is necessary to shut out the light. Against this it may be said that after the "mat" is formed on the tank it shuts out the light as effectually as a roof. Again, some engineers think an air-tight roof or covering is essential to foster the anaerobic bacterial action. The same answer is applicable here as was given above; that the mat, once formed, is a seal against air as well as light. In fact, there are many successful tanks which are not tightly covered. The best argument in favor of roofs is that the wind tends to break up the mat and prevent its formation in the early stages.

Aeration.—Because the action inside the tank is essentially an anaerobic one, the inflow should be so arranged that as little air as possible is carried in with the sewage. At the outflow pipes provision ought to be made for aerating the effluent. This may be done by making it pass over weirs in thin sheets, or pass upward through vertical pipes and over the edges, falling in a circular sheet. Other devices are used—throwing the sewage through the air in a spray and pumping air through it.

What Should and Should Not Be Expected of a Septic Tank.

A properly designed and operated septic tank should give an effluent containing very little solid matter in suspension, and that only in finely divided particles. Unfortunately this idea is seldom realized. The effluent will still be putrescible and offensive, and may (and very likely will) cause to some extent a nuisance unless properly handled while being further purified.

The bacterial action should destroy all but the mineral ash of the sludge, and the tank ought not to have to be cleaned oftener than once in several tanks. Here again the idea is frequently far from realized. *Tanks cleaned every month can certainly not be considered successful.*

The mat forms on the surface after a week or more and becomes thicker until the tank reaches a condition of equilibrium. The mat is usually 12 to 18 inches thick at this time, although one case was called to my attention where it continued to grow until it occupied a large proportion of the tank and had to be removed. This was an instance of too small a surface area.

The septic process is only a *preliminary* treatment and can be regarded as nothing more. The effluent is not stable. There is little evidence to prove that pathogenic bacteria do not survive the septic process in sufficient numbers to render the effluent dangerous without further treatment; in fact, there is every reason to believe that such effluents are distinctly dangerous from the standpoint of infection with disease germs.

Limitations.—In applying the septic process of sewage disposal to industrial wastes, each particular problem must be considered by itself. It is largely a problem for the chemist to determine what the sewage contains and what effect, if any, it will have on bacterial action. Through the Santa Clara and San Joaquin valleys the cannery wastes present a special problem. Sometimes these contain large quantities of lye used for peeling fruit. It is probable that this lye would act as a disinfectant in the sewage and deter or entirely prevent septic action in the tanks. At other places there are winery wastes and wastes from tanneries, dye works, pickle factories, paper mills, iron foundries, woolen mills and other establishments, each of which presents its own particular problem and must be dealt with accordingly. Very often it is more desirable to keep such wastes out of the main sewers and dispose of them independently.

Another point of note is that to lend itself readily to septic treatment, sewage should not be too dilute. In any method of treatment it is only economy to treat as small a quantity as possible, since septic treatment depends on bacterial growth in the sewage.

Wherever septic disposal is used the storm drains ought to be in a separate system from the domestic sewers. Sometimes it is desirable to let the first "run-off" from the streets after a "dry spell" go into the domestic sewers for purification treatment, for it sometimes carries considerable organic matter, but after the streets are washed clean this should no longer be done. In some cities this is provided for by connections between the storm drains and domestic sewer mains which are opened for a short time when rain begins to fall. If such practice obtains, the tanks should be especially designed and operated to meet such conditions.

Treatment of Septic Effluent.

To complete the purification of sewage, the effluent of septic tanks must be subjected to a final process in which the nitrifying or aerobic bacteria oxidize the products of the anaerobic action.

Sometimes this can be done at a profit by using the water for irrigation. For reasons that will be apparent it ought not be used for berries and soft skinned fruits nor for vegetables, such as celery, radishes, lettuce and those that are to be eaten raw. Where space is too limited for disposal by irrigation, contact beds or sprinkling filters are sometimes made use of. The materials used are broken stone, brick, coke, cinders, etc., the idea being to have a large area exposed to the sewage.

The beds are filled and drained alternately at intervals of eight to twelve hours. During the period when the filter is empty cultures of aerobes develop on the surface, oxidizing the material left there from the sewage. The purification depends on a bacterial process and the action is that of both aerobic and anaerobic forms which oxidize the organic matter and render it non-putrescible. These filters need not be expensive. They require some attention, but various patent automatic devices for regulating them are in use which serve to minimize the work of running the filter as well as to remove the personal equation of the attendant.

The use of slate beds is attracting some attention. These are made up of horizontal slabs of slate held apart at the ends by stone blocks. For the slate beds it is claimed that worms develop on the slates which work over the sludge and reduce it to harmless and inoffensive humus. The slate beds, like the contact filters, are dosed and rested alternately, multiple beds being necessary for this reason. A very good account of slate beds can be found in the *Engineering Record*, vol. 60, page 511.

Data on Some California Septic Tanks.

Fresno.—Population (1910), 24,900. Average sewage flow 6 to 7 cubic feet per second; 4,000,000 gallons per day. Concrete tanks; eight tanks each 36 by 90 by 6½ feet. Total capacity, 1,260,000 gallons. Storage about 7 hours. Effluent used for irrigation. Area surface, 26,000 square feet, or 1 square foot per person. City engineer, Mr. C. P. Jenson. Tank designed by Mr. Geo. L. Hoxie, formerly city engineer. The sludge has to be removed every few weeks.

Colusa.—Population (1910), 1,580. Reinforced concrete tanks; 2 units each 180 by 6 by 7½ feet. Total capacity, 50,000 gallons. Total area, 2,160 square feet, or 1.4 square feet per person. Designed and built by Mr. J. W. Kearth, city engineer.

Selma.—Population (1910), 1,750. One concrete tank, 40 by 100 by 8 feet. Capacity, 240,000 gallons. Area, 4,000 square feet, or 1.6 square feet per person. Estimated storage, 24 hours. Designed and built by Mr. Schaffer, city engineer.

Hanford.—Population (1910), 4,830. Tank designed by Dr. Musgrave, City Health Officer. Timber lined tank 65 by 24 by 7 feet. Capacity, 80,000 gallons. Area, 1,560 square feet, or .26 square foot per person. Estimated storage, 5 to 8 hours. Septic action incomplete. Effluent carries solid particles. Used for irrigation.

Corning.—Small private tank owned by Hotel Maywood.

Eldridge.—Population, 1,000. Wooden tank 150 by 15 by 10 feet, covered. Capacity, 155,000 gallons. Area, 2,250 square feet, or 2¼ square feet per person. *Storage, estimated 24 hours. Effluent very clear, but rather offensive.

Willows.—Population (1910), 1,140. Settling tank of concrete, open, 33 by 10 by 10 feet, designed for sedimentation: depth of 2½ feet. Capacity, 6,200 gallons. Area, 330 square feet, or .16 square foot per person. Not designed for septic treatment. Effluent clear and free from solids. Used for 3 years, and very small sludge deposit.

Sebastopol.—Population (1910), 1,230. Timber lined tank 160 by 15 by 6 feet, covered. Capacity, 100,000 gallons. Area, 2,400 square feet, or 1.6 square feet per person. Storage, estimated 10 to 15 hours.

Santa Rosa.—Population (1910), 7,820. Roofed, unlined tank, 250 by 27 feet at surface, 8 feet deep; side slopes 1 to 1. Capacity, 300,000 gallons. Area, 6,750 square feet, or 1.1 square feet per person. Estimated storage, 4 hours. Septic action incomplete.

Bakersfield.—Population (1910), 12,700. City engineer, Mr. Buffington. Circular concrete tank designed by Mr. Buffington, 200 feet diameter, 8 feet deep. Capacity, storage, 16 hours.

Redondo Beach.—Population (1910), 2,940. City engineer, Mr. A. A. Henderson. septic tank designed by Olmstead and Gillelen, Wright & Callender building, Los Angeles. Tank 160 by 50 by 7½ feet; reinforced concrete arched roof. Capacity, 450,000 gallons.

Long Beach.—Population (1910), 17,800. Timber lined tank, two units, each 610 by 6 by 6 feet. Capacity, 44,000 cubic feet—330,000 gallons. Area of surface, 7,300 square feet, or .37 square foot per person.

*Measured flow October, 1909—77,000 gallons, septic period 48 hours. Action incomplete.

Sawtelle, Soldiers' Home.—Total population, 3,000. Two tanks, independent, but same size and same flow. Each tank 70 by 20 by 8 feet. Capacity, each 82,500 gallons. Total capacity, 165,000 gallons. Estimated storage 6 hours. Area of surface (total for both) 2,800 square feet, or .9 square foot per person. Tanks doing good work.

Pomona.—Population (1910), 10,200. Tank 45 by 24 by 8 feet, cement lined. Capacity, 65,000 gallons. Flow estimated at 75 gallons per capita, 750,000 gallons. Estimated storage about 2 or 3 hours. Area, 1,100 square feet, or .1 square foot per person. Tank too small, and has to have mat removed frequently.

Patton State Hospital.—About 1,500 inmates. Concrete septic tank. Two units; only one in use. Each unit 116 by 20 by 7½ feet. Capacity, 131,000 gallons. Estimated storage 10 hours. Area of surface, 2,200 square feet, or 1.5 square feet per person.

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The Practical Operation of Sewage Purification Plants. John W. Alvord.

Annual Reports of Massachusetts and Ohio State Boards of Health. 1908-09.

Septic Tank Disposal: Slate Beds: Sludge Disposal: Crops on Sewage Beds: Engineering Record, vol. 60, pages 37, 77, 212, 249, 287, 351, 580. Journal of the Association of Engineering Societies, vol. 34, page 33. Engineering News, vol. 62, pages 196, 251. Municipal Engineering, vol. 37, page 20. Municipal Engineer, vol. 37, page 105. Engineering News, vol. 62, page 167. Engineering News, vol. 62, page 101. Manufacturing Wastes. Municipal Engineer, vol. 37, pages 80, 106, 364. Engineering Record, vol. 60, pages 71, 157, 420, 580, 667, 681, and 704.

Sewage Disposal in America. Transaction Amer. Soc. C. E., vol. 54, pages 147, 182.

Septic Tank Patents. Municipal Engineer, vol. 35, page 290.

Engineering Record, vol. 58, pages 223, 253.

In addition to the subjects specifically mentioned above, references include statements relative to Standards of Purification; Sewage Testing; The Cost of Disposal; Disinfection of Sewage; Stream Pollution; National and State Control of the Problem.

RESIDENTIAL SEWAGE DISPOSAL PLANTS.

The following quotations from an excellent article on residential sewage disposal plants by Mr. R. Winthrop Pratt* have been included as illustrating the application of the data outlined by Mr. Baker as the basis by constructing successful septic tank plants for disposing of sewage:

“A plant designed according to the above mentioned principles may be described somewhat as follows: The outflowing sewage from the house is delivered into a settling basin of sufficient size and of suitable design to afford opportunity for the sedimentation of the solid matter and the rise of the grease. This basin or tank contains a constant volume which approximately should equal one or two days' flow of sewage. The inlets and outlets should be so arranged that neither the scum at the top nor the sludge at the bottom is disturbed as the sewage passes through it. The matter deposited in the bottom of the tank becomes partially reduced and passes away in the form of liquid or gas. There will be, however, a certain accumulation which must be cleaned out occasionally, probably not oftener than once a year. The tank should be ventilated through the main soil pipe of the house in the same way in which modern sanitary sewer systems are ventilated.

The clarified liquid overflowing from this tank passes into a second one adjacent thereto, called the dosing tank. Herein is placed an automatic siphon or other controlling device which holds back the flow until the sewage has reached a certain depth, at which time the entire con-

*Copied without the illustrations from pp. 231-235 of the July, 1911, issue of the *Monthly Bulletin*. Ohio State Board of Health. Mr. R. Winthrop Pratt is Chief Engineer, Ohio State Board of Health.

tents of the dosing tank are discharged very rapidly. The discharge completed, the apparatus automatically prevents further outflow until the tank becomes again full. This tank serves to apply the sewage to the filter, sub-surface disposal system, or other means for final purification, to which the capacity or 'dose' must bear a certain relation in order that the sewage be properly distributed.

Such distribution is essential for the reason that, if the sewage is allowed to pass on to the filter or into the 'absorption system' in the same irregular way that it leaves the house, the filtering material will be constantly saturated in places and hence become clogged and foul. In other words, the filtering material must be kept clean by allowing the air to frequently penetrate it.

The disposal of the clarified sewage by open filters and by broad irrigation is identical, in principle, with the corresponding methods for city plants and need not be described here. Of course, these can be used only where ample land is available; and they are not suitable for built-up districts, but rather for isolated houses. In any case, these methods involve exposing the unpurified sewage to the air and are therefore less desirable than a sub-surface system. If, however, one wishes to construct a filter bed in a concrete chamber beneath the ground, this can be satisfactorily done, though somewhat expensive, in close proximity to residences.

The sub-surface disposal system is composed of lines of three-, four- or six-inch agricultural drain tile or vitrified pipe with open joints, laid level or nearly so, within one or two feet of the surface of the ground. These are called absorption or distribution pipes. Their total length is determined primarily by the porosity of the soil in which they are placed and varies for a family of five or six, from 100 to 600 feet. In clayey soils it is necessary to thoroughly underdrain the land at a depth of 3 or 4 feet in order to render the soil dry enough to absorb the sewage, and in addition it is desirable to surround the tile with gravel, cinders or porous material. There should be, of course, no opportunity for sewage to pass directly from the absorption pipe into any of the underdrains. As mentioned above, the cubical contents of the absorption system should have a certain relation to the dosing tank in order that the sewage may be properly distributed. It is often convenient, furthermore, to divide the system into two or three portions in order that the flow may be changed from one to the other every few weeks.

There will doubtless be a certain accumulation of finely divided solid matter in the tile which may make necessary their relaying after a period of years. This, however, is a matter of small importance. The system can be placed at any convenient point and is often installed underneath the lawn or vegetable garden without in any way showing evidences of its existence, except by assisting in the growth of vegetation.

While the general principles of the design of municipal sewage purification plants apply also to residential plants, yet there are several practical differences which should be borne in mind.

In the first place the sewage from individual houses is extremely fresh and there is no opportunity for the mechanical breaking up of the larger suspended particles as is the case when sewage flows for miles in a city sewer. Then there are extreme fluctuations in the rate of flow in the case of the single house, as compared to the more regular

discharge from a municipality. For instance, there is rarely any flow during the night, and the flow during the day comes in sudden rushes.

The small actual size of a house sewage tank, although it may be large from the standpoint of 'hours of storage,' may permit a sudden inrush of sewage to stir up the entire contents, thus carrying out some solid matter and causing the filters or the sub-surface system to clog. The above mentioned facts show the necessity of designing both tanks and finishing treatment on a more liberal per capita basis than is required with municipal plants.

Finally, residential plants are intended to be more automatic than municipal plants, and rarely receive regular attention, and they must of necessity, be located much nearer to dwellings than city plants. It is necessary, therefore, to exercise much more care in design in order that no work need be done on the plant oftener than once a year, although it should be inspected every few months. Also the design should be such that the plant will create no odors even though within a few feet of a residence.

Relative to the cost of building an efficient residential sewage disposal plant for a family of five or six, this will vary greatly according to the local cost of material and labor and the character of the ground in which it is to be placed. The usual tanks with sub-surface absorption system should be built in porous ground for \$100 to \$150; and in clay soil for \$250 to \$300. A plant including a covered sand filter may cost \$500."

REPORT OF THE BUREAU OF ADMINISTRATION FOR MAY, 1913.

JOHN F. LEINEN, Director.

Division of Sewage Disposal and Water Supplies.

During the month a formal application for sewage disposal in inland waters was received from the Newcastle Sanitary District, Newcastle, Placer County, California.

The Board's Consulting Engineer held several important conferences relative to sewerage and sewage disposal problems of communities, as follows: On May 3d and 5th, with Mr. C. E. Grunsky, consulting engineer, relative to the disposal of the sewage of Stockton; on May 7th, with Messrs. Bliss and Givan and with Dr. Snow, relative to the disposal of the sewage of Sacramento; on May 14th, with Mr. M. C. Polk, city engineer of Chico, relative to the treatment of the sewage of that place; on May 29th, with Mr. Knowles, bridge engineer of the Western Pacific Railroad, with reference to the sewerage and sewage disposal of Portola.

The consulting engineer of the Board visited Auburn and Newcastle on May 8th, held conferences with the local officials and made special examinations into the problems of sewage disposal.

A detailed report upon the sewerage and sewage disposal problem of Orange was completed and submitted to the Board for action. The preparation of a report upon the disposal of the sewage of the Newcastle Sanitary District was practically completed and will be submitted to the Board early in June. Work upon the preparation of a tentative report dealing with the Los Angeles sewage disposal situation was begun. The plans and specifications for the new and improved sewerage and sewage disposal works for Los Gatos, prepared by Mr. F. A. Nikirk, city engineer, were also reviewed. A special examination of sand samples from a proposed temporary sewage disposal area for the city of Stockton was made by Mr. H. B. Foster in the office of the consulting engineer. In this connection it might be said that similar studies have recently been conducted on soils of lands used for sewage disposal at Orange and Orland, and are proposed for Chico.

REPORT OF BUREAU OF VITAL STATISTICS.*

GEORGE D. LESLIE, Director.

State Totals and Annual Rates.—The following table shows for California as a whole the birth, death and marriage totals for the current and preceding months in comparison with those for the corresponding months of last year, as well as the annual rates per 1,000 population represented by the totals for the current and preceding months. The rates are based on an estimated midyear population of 2,671,491 for California in 1913, the estimate having been made by the Census Bureau method with slight modifications.

Birth, Death and Marriage Totals, with Annual Rates per 1,000 Population for Current and Preceding Months for California: April.

Month.	Monthly total.		Annual rate per 1,000 population: 1913.
	1913.	1912.	
April—			
Births -----	3,484	3,180	15.9
Deaths -----	3,235	3,038	14.7
Marriages -----	2,446	2,365	11.1
March—			
Births -----	3,488	3,306	15.4
Deaths -----	3,330	3,363	14.7
Marriages -----	2,167	1,816	9.6

The birth, death and marriage totals for April were greater in 1913 than in 1912, the gain being particularly great in the case of births.

County Totals.—The first table which follows below shows the monthly birth, death and marriage totals for the principal counties of the State, the list being limited to counties having a population of at least 25,000 according to the Federal Census of 1910. Totals are also shown for San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), as well as for Los Angeles and Orange counties together.

City Totals.—The second of the following tables gives the birth and death totals for the principal freeholders' charter cities, the list including all chartered cities with a census population of at least 15,000 in 1910. Totals are given likewise for San Francisco in comparison with Oakland, Alameda, and Berkeley, the three cities adjoining one another on the east shore of San Francisco Bay, as well as for Los Angeles in comparison with neighboring chartered cities (Long Beach, Pasadena, Pomona, and Santa Monica).

*NOTE.—The present report is for the month preceding, but one. This order must be followed hereafter because of the publication of the Bulletin during the early part of the month, before the tabulation of records for the preceding month is completed.

Birth, Death and Marriage Totals, for Principal Counties: April.

County.	April, 1913.		
	Births.	Deaths.	Marriages.
California	3,484	3,235	2,446
Counties of more than 25,000 population (1910):			
Alameda	268	297	218
Butte	40	43	12
Contra Costa	48	42	17
Fresno	158	80	86
Humboldt	33	35	18
Kern	45	44	27
Los Angeles	1,004	835	573
Marin	23	21	84
Orange	50	43	115
Riverside	37	56	36
Sacramento	129	91	96
San Bernardino	71	81	48
San Diego	124	119	125
San Francisco	642	611	490
San Joaquin	41	79	58
San Mateo	45	24	36
Santa Barbara	57	36	21
Santa Clara	96	125	78
Santa Cruz	25	26	17
Solano	17	42	10
Sonoma	68	64	24
Tulare	45	36	27
Selected groups:			
San Francisco and other bay counties.....	1,026	995	845
Los Angeles and Orange counties.....	1,054	878	688

Birth and Death Totals, for Principal Cities: April.

City.	April, 1913.	
	Births.	Deaths.
Freeholders' charter cities.....	2,215	1,955
Cities of more than 15,000 population (1910):		
Alameda	25	28
Berkeley	34	36
Fresno	60	25
Long Beach	34	29
Los Angeles	691	528
Oakland	186	173
Pasadena	58	41
Riverside	15	22
Sacramento	99	76
San Diego	90	90
San Francisco	642	611
San Jose	44	40
Stockton	20	39
Selected groups:		
San Francisco	642	611
Oakland, Alameda and Berkeley.....	245	237
Totals, bay cities.....	887	848
Los Angeles	691	528
Neighboring cities	123	103
Totals	814	631

Causes of Death.—The following table shows the classification of deaths in California for the current month, in comparison with the preceding month:

Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths, for Current and Preceding Month, for California: April.

Cause of death.	Deaths: April.	Proportion per 1,000.	
		April.	March.
ALL CAUSES	3,235	1,000.0	1,000.0
Typhoid fever	23	7.1	7.2
Malarial fever	4	1.2	-----
Smallpox	7	0.3	-----
Measles	29	9.0	2.4
Scarlet fever	8	2.5	0.3
Whooping-cough	9	2.8	3.6
Diphtheria and croup	22	6.8	5.1
Influenza	22	6.8	8.1
Other epidemic diseases	10	3.1	5.1
Tuberculosis of lungs	408	126.1	126.7
Tuberculosis of other organs	85	26.3	23.4
Cancer	238	73.6	62.8
Other general diseases	142	43.9	45.4
Meningitis	49	15.1	13.5
Other diseases of nervous system	288	89.0	90.4
Diseases of circulatory system	486	150.2	175.1
Pneumonia and broncho-pneumonia	232	71.7	93.1
Other diseases of respiratory system	57	17.6	24.3
Diarrhea and enteritis, under 2 years	76	23.5	13.5
Diarrhea and enteritis, 2 years and over	31	9.6	7.2
Other diseases of digestive system	164	50.7	49.0
Bright's disease and nephritis	209	64.6	65.2
Childbirth	41	12.7	7.8
Diseases of early infancy	119	36.8	37.8
Suicide	68	21.0	20.4
Other violence	261	80.7	69.1
All other causes	153	47.3	43.8

In April there were 493 deaths, or 15.2 per cent of all, from various forms of tuberculosis and 486, or 15.0 per cent, from diseases of the circulatory system. Tuberculosis thus led heart disease slightly for April.

Other notable causes of death were: Diseases of the nervous system, 337; violence, 329; diseases of respiratory system, 289; diseases of digestive system, 271; cancer, 238; Bright's disease and nephritis, 209; and epidemic diseases, 128.

The deaths from epidemic diseases were as follows: Measles, 29; typhoid fever, 23; diphtheria and croup, 22; influenza, also 22; whooping-cough, 9; scarlet fever, 8; and all other epidemic diseases, 15.

The deaths from the four leading epidemic diseases reported for the month were distributed by counties as follows:

Measles.		Typhoid fever.		Influenza.	
Imperial	3	Alameda	3	Alameda	3
Kern	2	Contra Costa	1	Butte	2
Los Angeles	17	Kings	1	El Dorado	2
San Diego	1	Los Angeles	1	Kings	1
San Francisco	1	Madera	1	Los Angeles	7
Santa Clara	2	Monterey	1	Monterey	1
Solano	1	Orange	1	San Bernardino	1
Tulare	2	Riverside	3	San Francisco	2
Total	29	Sacramento	3	Santa Clara	1
Diphtheria and croup.		San Bernardino	1	Solano	1
Alameda	1	San Diego	1	Sonoma	1
Butte	1	San Francisco	4	Total	22
Los Angeles	10	Solano	1		
Sacramento	2	Stanislaus	1		
San Bernardino	1	Total	23		
San Francisco	4				
Santa Clara	1				
Solano	2				
Total	22				

Geographic Divisions.—The following table presents data for geographic divisions, including the metropolitan area, or San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), in comparison with the rural counties of Northern and Central California:

Deaths from Main Classes of Diseases, from Geographic Divisions: April.

Geographic division.	Deaths: April.										
	All causes.	Epidemic diseases.	Tuberculosis (all forms).	Cancer.	Diseases of nervous system.	Diseases of circulatory system.	Diseases of respiratory system.	Diseases of digestive system.	Diseases of genitourinary system.	Violence.	All other causes.
THE STATE	3,235	128	493	238	337	486	289	271	209	329	455
Northern California	343	13	39	21	33	58	33	26	27	31	63
Coast counties	175	6	22	13	13	30	17	14	13	12	35
Interior counties	168	7	17	8	20	28	16	11	14	19	28
Central California	1,678	57	220	143	181	284	149	153	96	170	218
San Francisco	611	16	76	46	56	130	54	59	37	51	87
Other bay counties	384	8	60	42	38	50	38	31	22	47	48
Coast counties	190	6	15	19	35	73	13	14	14	15	21
Interior counties	493	27	69	36	52	66	44	55	25	57	62
Southern California	1,214	58	234	74	123	144	107	88	84	128	174
Los Angeles	835	43	161	53	85	89	79	57	61	70	137
Other counties	379	15	73	21	38	55	28	31	23	58	37
Northern and Central California	2,021	70	259	164	214	342	182	183	125	201	281
Metropolitan area	995	24	136	88	94	180	92	89	59	96	135
Rural counties	1,026	46	123	76	120	162	90	94	66	105	146

Sex and Age Periods.—The proportion of the sexes among the 3,235 decedents in April was: Male, 2,008, or 62.1 per cent, and female, 1,227, or 37.9 per cent.

The following table shows the age distribution by numbers and per cents, of deaths classified by sex :

Deaths Classified by Sex and Age Periods, with Per Cents by Age Periods, for California: April.

Age period.	Deaths.			Per cent.		
	Total.	Male.	Female.	Total.	Male.	Female.
ALL AGES -----	3,235	2,008	1,227	100.0	100.0	100.0
Under 1 year-----	329	190	139	10.2	9.5	11.3
1 to 4 years-----	147	79	68	4.5	3.9	5.5
5 to 14 years-----	96	52	44	3.0	2.6	3.6
15 to 24 years-----	198	114	84	6.1	5.7	6.8
25 to 34 years-----	298	191	107	9.2	9.5	8.7
35 to 44 years-----	372	246	126	11.5	12.2	10.3
45 to 54 years-----	401	281	120	12.4	14.0	9.8
55 to 64 years-----	420	273	147	13.0	13.6	12.0
65 years and over-----	974	582	392	30.1	29.0	32.0

This table shows that relatively more females than males died at the age periods under 25 years as well as at 65 years and over, while relatively more males than females died at the age periods from 25 to 64 years.

Occupations.—The table below gives, for deaths 15 years and over, the number of men and women for whom such occupation was reported in contrast with those for whom no gainful occupation was shown.

Deaths, 15 Years and Over, Classified by Sex and Occupation, with Per Cents by Sex, for California: April.

	Deaths.			Per cent male.	Per cent female.
	Total.	Male.	Female.		
15 YEARS AND OVER-----	2,663	1,687	976	63.3	36.7
Occupation reported -----	1,553	1,455	98	93.7	6.3
No gainful occupation-----	1,110	232	878	20.9	79.1

Of the 1,553 decedents for whom occupations were reported the males numbered 1,455, or 93.7 per cent, and the females only 98, or 6.3 per cent.

The following table shows the distribution of male decedents 15 years and over, engaged in the main kinds of occupation :

Deaths of Males Fifteen Years and Over Engaged in Gainful Occupations, Classified by Kind of Occupation, with Per Cents, for California: April.

Kind of occupation.	Males 15 years and over.	
	Deaths.	Per cent.
ALL OCCUPATIONS -----	1,455	100.0
Professional -----	80	5.5
Clerical and official-----	121	8.3
Mercantile and trading-----	101	6.9
Public entertainment-----	31	2.1
Personal service, police and military-----	53	3.7
Laboring and servant-----	298	20.5
Manufacturing and mechanical industry-----	300	20.6
Agriculture transportation and other outdoor pursuits-----	463	31.8
All other occupations-----	8	0.6

Of the 1,455 male decedents for whom occupations were reported, 463, or 31.8 per cent, were engaged in agriculture, transportation, and other outdoor pursuits; 300, or 20.6 per cent, in manufacturing and mechanical industry; 298, or 20.5 per cent, in laboring and servant work; and altogether 394, or 27.1 per cent, in professional, clerical and official, mercantile and trading, and all other occupations.

It should be noted that the figures on deaths occurring in different occupations are necessarily affected by the fact that in California a large number of men are engaged in agriculture and other outdoor pursuits, while relatively few follow professional and similar occupations which show small numbers of deaths.

REPORT OF THE BUREAU OF THE HYGIENIC LABORATORY FOR MAY.

WILBUR A. SAWYER, M.D., Director.

Failure to Take Diphtheria Cultures.

Occasionally a child, who would have been saved by antitoxin, dies from diphtheria in California because the disease did not present early symptoms which were characteristic enough to establish the correct diagnosis. Sometimes an accompanying skin eruption leads to a mistaken diagnosis of scarlet fever and the throat condition is regarded as the sore throat which is usually a part of that disease. Sometimes scarlet fever and diphtheria exist in the same patient and the diphtheria is overlooked. Not infrequently diphtheria starts in the nose or the larynx where it cannot readily be seen and the disease is not discovered in time. In all cases of doubt, physicians should supplement the physical examination of the patient with a laboratory test of a culture from the throat and nose. In case of serious illness where diphtheria is suspected antitoxin should be administered without waiting for the report from the laboratory. Few persons will die of diphtheria owing to a mistake in diagnosis if cultures are promptly taken in all cases of serious doubt. The importance of these measures is recognized by the provisions of the State Board of Health and the larger cities of California for the free examination of diphtheria cultures. The State Hygienic Laboratory has established 159 depositories for the storage and free distribution to physicians of diphtheria culture outfits, so that there is little need for delay in taking cultures.

Division of Biological Examinations.

Summary of Examinations Made in the California State Hygienic Laboratory
During the Month of May, 1913.

Condition suspected.	Positive.	Negative.	Inconclusive.	Total.
Main Laboratory at Berkeley:				
Anthrax -----		3		3
Diphtheria -----	8	29	1	38
Gonococcus infection -----	10	5		15
Malaria -----		4		4
Meningitis, epidemic -----	2			2
Rabies -----	22	4	3	29
Tuberculosis -----	19	14		33
Typhoid -----	7	10		17
Water pollution -----	1	2		3
				144
Northern Branch at Sacramento:				
Diphtheria -----	11	24	3	38
Gonococcus infection -----	1			1
Malaria -----	1	3		4
Tuberculosis -----	4	7		11
Typhoid -----	1	7		8
				62
San Joaquin Valley Branch at Fresno:				
Diphtheria -----		3		3
Tuberculosis -----	1	2		3
Typhoid -----		6		6
				12
Southern Branch at Los Angeles:				
Diphtheria -----	5	8		13
Rabies -----	1			1
Typhoid -----	2	9		11
				25
Total number of examinations -----				243

Division of Preventive Therapeutics.

Pasteur Treatment for the Prevention of Rabies by the State Hygienic Laboratory
During the Month of May, 1913.

	Treatment commenced.	Treatment completed.
Main Laboratory at Berkeley -----	2	3
Northern Branch at Sacramento -----	1	2
San Joaquin Valley Branch at Fresno -----	0	0
Southern Branch at Los Angeles -----	0	0
Laboratory of Sacramento Board of Health, by deputized bacteriologist -----	0	0
Laboratory of San Francisco Board of Health, by deputized bacteriologist -----	5	6
Laboratory of Los Angeles Board of Health, by deputized bacteriologist -----	1	0
Laboratory of Letterman General Hospital, Presidio, by deputized bacteriologist -----	0	0
	9	11

Public Health Instruction.*Participation in Instruction in Public Health During May, 1913.***Main Laboratory at Berkeley:**

Bacteriological instruction outfits sent out.....	7
Bacteriological instruction outfits in use.....	32
Lectures or talks by the director.....	0
Lectures or talks by the chief bacteriologist.....	1

Division of Epidemiological Investigations.*Epidemiological Investigations During May, 1913.***Main Laboratory at Berkeley:**

Special investigations by the director.....	6
Continuation of the investigation into the methods of spread of epidemic poliomyelitis.	
Continuation of an investigation into the methods of sterilization of library books.	
Continuation of an investigation into the bactericidal efficiency of "Ozone" machines.	
Investigation at Lakeport of cases of diphtheria and suspected scarlet fever.	
Investigation at Walnut Creek of cases of smallpox.	
Investigation of two human cases of rabies in San Francisco.	
Special investigations by the assistant bacteriologist.....	1
Completion of the study of the virulence of diphtheria bacilli isolated from the throats of carriers.	

REPORT OF BUREAU OF FOOD AND DRUGS FOR MAY, 1913.

M. E. JAFFA, Director.

The samples received at the Food and Drug Laboratory, during the month of May, include the usual miscellaneous official samples collected by inspectors, samples from state institutions examined to ascertain their conformity to contract specifications, and several samples of waste products from manufacturing establishments which were analyzed for the California Fish and Game Commission in connection with their enforcement of the state law which prohibits the discharge of certain materials into the waters of the bay.

A number of samples of gluten bread, representing several brands found in the open market, recently received at the Laboratory have been found deficient in gluten. These samples were made from a mixture of gluten flour and common flour, in some cases in such proportions that the bread was but very little stronger in gluten than ordinary bread. Gluten bread should be made from GLUTEN FLOUR, the standard for which is as follows:

"GLUTEN FLOUR is the clean, sound product made from flour by the removal of the starch and contains not less than five and six tenths per cent (5.6%) of nitrogen and not more than ten per cent (10%) of moisture."

The standard for common FLOUR reads:

"FLOUR is the fine, clean, sound product made by bolting wheat meal and contains not more than thirteen and five tenths per cent (13.5%) of moisture, not less than one and twenty-five hundredths per cent (1.25%) of nitrogen, not more than one per cent (1%) of ash, and not more than fifty one-hundredths per cent (.50%) of fibre.

Any person wishing copies of the following Notices of Judgment may

obtain same by addressing the Director of the State Food and Drug Laboratory, University of California, Berkeley, Cal.:

Nos. 2216 to 2219 incl., 2259 to 2264 incl., 2266 to 2293 incl., 2297—Adulteration of Milk.

Nos. 2220, 2236—Adulteration and Misbranding of Vinegar.

No. 2221—Adulteration and Misbranding of Blackberry Cordial.

No. 2222—Misbranding of Bitters.

No. 2223—Adulteration of Raspberries.

No. 2224—Adulteration of Mineral Water.

Nos. 2225, 2226, 2228, 2230, 2232, 2234, 2252, 2254, 2256—Misbranding of Vodka.

Nos. 2227, 2229—Adulteration and Misbranding of Beer.

No. 2231—Misbranding and Adulteration of Syrup.

Nos. 2233, 2322—Adulteration of Tomato Pulp.

No. 2235—Adulteration and Misbranding of Malt Tonic.

No. 2237—Misbranding of Vanilla Extract.

No. 2238—Alleged Misbranding of Italian Chocolates.

No. 2239—Adulteration and Misbranding of Honey Gin and Orange.

Nos. 2240, 2315—Misbranding of Flour.

No. 2241—Adulteration and Misbranding of Vanilla Flavor (Bakers), Ginger Extract (Jamaica), Vanilla Extract (Special A), Cassia Extract, Vanilla Extract (Boston), Lemon Extract (Bakers), and Vanilla Extract (Superior Ice Cream); and Misbranding of Pistachio Extract.

No. 2242—Adulteration and Misbranding of Wintergreen Extract.

No. 2243—Adulteration and Misbranding of Blood Orange Extract and of Orange Extracts.

No. 2244—Adulteration and Misbranding of Nutmeg Extract.

Nos. 2245, 2300—Adulteration and Misbranding of Canned Tomatoes.

No. 2246—Misbranding of So-called Red Dragon Seltzer.

No. 2247—Adulteration and Misbranding of Eggs.

Nos. 2248, 2320—Adulteration and Misbranding of Lemon Extract.

No. 2249—Adulteration of Oysters.

No. 2250—Misbranding of Coffee.

No. 2251—Adulteration and Misbranding of Sardines.

No. 2253—Adulteration and Misbranding of So-called Apple Brandy.

No. 2255—Misbranding of Canned Blueberries.

Nos. 2257, 2311, 2312—Adulteration of Tomato Catsup.

No. 2258—Misbranding of Malt Extract.

Nos. 2265, 2302, 2303—Adulteration of Cream.

No. 2294—Adulteration of Prunes.

No. 2295—Adulteration of Gelatin.

No. 2296—Adulteration of Apricots.

No. 2298—Adulteration and Misbranding of Essence of Peppermint.

Nos. 2299, 2306—Adulteration and Misbranding of Nitroglycerin Tablets.

REPORT OF THE BUREAU OF PUBLICATIONS AND HEALTH INFORMATION FOR MAY, 1913.

GUY P. JONES, Acting Director.

Coincidental with the adjournment of the legislature, this Bureau was flooded with requests for copies of bills pertaining to health legislation that passed both houses. It was impossible to comply with all of the requests, because the continuous and unprecedented demand for these bills since the beginning of the session in January had almost exhausted the supply.

However, the Board expects to publish a new pamphlet edition of the State Health Laws, including those measures which shall become law during the present year. Names of all who request that this pamphlet be sent to them, will be filed, and immediately upon publication a copy will be forwarded.

A new revised edition of the Pure Food and Drug Laws for California is also planned to be published during the summer. This will contain the legislation pertaining to foods and drugs enacted by the 1913 legislature. Requests for copies of the publication should be sent to this Bureau.

LIST OF CITY HEALTH OFFICERS.

City.	Health officer.	City.	Health officer.
Alameda.....	Dr. A. Hieronymus	Kernville.....	
Albany.....	Dr. F. R. Woolsey	King City.....	
Alhambra.....	Dr. F. E. Corey	Kingsburg.....	
Alturas.....	Dr. John Stille	Lakeport.....	Jabez Banks
Alviso.....		Larkspur.....	
Anaheim.....	Dr. J. L. Beebe	Lincoln.....	F. R. Elder
Antioch.....	Dr. W. S. George	Lindsay.....	Dr. W. W. Tourtellot
Arcadia.....		Livermore.....	Dr. H. G. McGill
Arcata.....	Dr. G. W. McKinnon	Lodi.....	Dr. F. W. Colman
Arroyo Grande.....		Long Beach.....	Dr. W. H. Newman
Auburn.....	A. S. Waldo	Lompoc.....	
Avalon.....		Lordsburg.....	Dr. J. E. Hubble
Avoca.....	Dr. John E. Hill	Los Angeles.....	Dr. L. M. Powers
Bakersfield.....	H. Farris	Los Banos.....	Dr. J. L. McClelland
Belvedere.....	Dr. Florence Scott	Los Gatos.....	Dr. C. K. Small
Benicia.....	Dr. W. L. McFarland	Loyalton.....	Dr. G. L. Coates
Berkeley.....	Dr. J. J. Benton	Madera.....	
Biggs.....	Dr. O. C. Hawkins	Maricopa.....	Dr. H. N. Taylor
Bishop.....	Dr. J. W. Shute	Martinez.....	Dr. E. E. Brown
Blue Lake.....	Dr. G. N. Wood	Marysville.....	Wm. Meek
Brawley.....	Dr. L. L. Lindsey	Mayfield.....	Dr. F. M. Seibert
Burbank.....		McCloud.....	Dr. R. T. Legge
Burlingame.....	J. R. Murphy	McKittrick.....	G. M. Chittwood
Calistoga.....	Dr. Henry Abrons	Merced.....	Dr. Brett Davis
Calxico.....	Dr. Wm. F. Smith	Mill Valley.....	Capt. M. Staples
Chico.....	G. H. Taylor	Modesto.....	Dr. E. V. Falk
Chino.....	Dr. John W. Callison	Montague.....	
Claremont.....		Mojave.....	A. Smith
Cloverdale.....	Dr. Cory C. Ledyard	Monrovia.....	Dr. Abram Hostetter
Coalinga.....	Dr. H. S. Warren	Monterey.....	
Colfax.....		Morgan Hill.....	Dr. D. W. Watt
Colton.....	Dr. L. A. J. La Motte	Mountain View.....	Dr. A. H. McFarlane
Colusa.....	Dr. C. A. Poage	Napa.....	J. D. Treadway
Compton.....	J. W. Stone	National City.....	Dr. T. F. Johnson
Concord.....	Dr. F. F. Neff	Nevada City.....	Hugh Murchie
Coram.....	Geo. H. Thomas	Newman.....	Dr. H. V. Armistead
Corning.....	Dr. O. F. Rudolph	Newport Beach.....	
Corona.....	Dr. W. S. Davis	Oakdale.....	Elmer E. Endicott
Coronado.....	Dr. Raffaele Lornai	Oakland.....	Dr. E. N. Ewer
Cottonwood.....	Dr. A. B. Gilliland	Ocean Side.....	Dr. R. S. Reid
Covina.....		Ocean Park.....	Dr. W. M. Kendall
Crescent City.....		Ontario.....	Dr. C. S. Orr
Daly City.....		Orange.....	Dr. Arthur H. Dorman
Davis.....	Dr. W. E. Bates	Orland.....	Dr. S. Goldman
Delano.....	Dr. H. Hildreth	Oroville.....	Dr. W. P. Gates
Del Norte.....	Dr. Wm. Whittington	Oxnard.....	Dr. Ralph W. Avery
Dorris.....	Dr. A. A. Atkinson	Pacific Grove.....	Charles E. Tuck
Dixon.....	W. C. Rhem	Palo Alto.....	Huher G. Jenkins
Dunsmuir.....	Dr. W. B. Mason	Pasadena.....	Dr. Stanley P. Black
Eagle Rock.....	Dr. C. H. Phinney	Paso Robles.....	H. M. Hayne
Elsinore.....	Dr. George D. Keeler	Perria.....	A. W. Hardy
Emeryville.....	Dr. A. T. Drennon	Petaluma.....	Dr. J. M. Proctor
Escondido.....	Dr. David Criss	Philo.....	Dr. J. Chittleton
Etna Mills.....	Dr. W. H. Haines	Pittsburg.....	Dr. F. S. Gregory
Eureka.....	Dr. L. A. Wing	Placerville.....	P. J. Hall
Exeter.....	Dr. A. D. McLean	Pleasanton.....	Dr. R. I. Wells
Fairfield.....	Dr. S. G. Bransford	Pomona.....	Dr. W. H. Holmes
Ferndale.....	Dr. C. A. Phelan	Porterville.....	Dr. O. C. Higgins
Fort Bragg.....	Dr. L. C. Gregory	Piedmont.....	Geo. T. Burtchael
Fort Jones.....	Thos. Bransom	Point Arena.....	
Fortuna.....	Dr. Geo. S. Loveren	Porter Valley.....	
Fowler.....	Dr. W. T. Crawford	Randaburg.....	F. R. McGinness
Fresno.....	Dr. L. R. Wilson	Red Bluff.....	Dr. F. I. Bailey
Fullerton.....	Dr. F. J. Gobar	Redding.....	T. D. Poole
Gilroy.....	Dr. John A. Clark	Redlands.....	Dr. Chas. E. Ide
Glendale.....	Dr. R. E. Chase	Redondo Beach.....	Dr. D. R. Hancock
Grass Valley.....	Paul E. Sears	Redwood City.....	Dr. J. L. Ross
Gridley.....	Dr. L. L. Thompson	Richmond.....	Dr. Chas. R. Blake
Hanford.....	Dr. C. L. Scott	Rio Vista.....	Dr. A. J. McKinnon
Hayward.....	Dr. F. W. Browning	Riverside.....	Dr. Thos. R. Griffith
Healdsburg.....	Dr. J. W. Seawell	Rocklin.....	H. D. Fletcher
Hemet.....	Dr. A. B. Eadie	Roseville.....	Mabel B. Scott
Hermosa Beach.....	B. F. Brown	Ross.....	
Hercules.....	Dr. M. L. Fernandez	Sacramento.....	Dr. Wm. K. Lindsay
Hillborough.....		Saint Helena.....	S. H. Pettit
Hollister.....	Dr. R. G. Curtis	Salinas.....	F. A. Abbott
Hollywood.....	E. O. Palmer	San Anselmo.....	Dr. Chipman
Huntington Beach.....	Dr. G. A. Shank	San Bernardino.....	Dr. C. V. McConico
Huntington Park.....	Dr. W. Thompson	San Diego.....	Dr. F. H. Mead
Imperial.....	Dr. C. E. Standlee	San Francisco.....	Dr. R. G. Broderick
Inglewood.....	Dr. H. A. Putnam	San Gabriel.....	Dr. Ruth Parrott
Jackson.....	George Hambrie	Sanger.....	
Kennett.....	Dr. J. F. Sandholdt	San Jose.....	Dr. M. F. Hopkins

LIST OF CITY HEALTH OFFICERS—Continued

City.	Health officer	City	Health officer
San Jacinto.....	Thos. Lloyd	Sonoma.....	
San Juan.....	W. R. Moore	Taft.....	E. G. Wood
San Luis Obispo.....	W. F. Cook	Tehachapi.....	L. M. Denison
San Rafael.....	Dr. W. F. Jones	Tracy.....	Dr. J. G. Murrell
San Mateo.....	Dr. S. G. Goodspeed	Tehama.....	
San Leandro.....	P. C. Du Bois	Tropico.....	Dr. Wm. C. Mabry
Santa Ana.....	Dr. J. I. Clark	Tulare.....	Dr. J. B. Rosson
Santa Barbara.....	Dr. D. A. Conrad	Turlock.....	Dr. F. B. Reardon
Santa Cruz.....	Dr. H. E. Piper	Ukiah.....	Dr. J. Liftchild
Santa Clara.....	Dr. J. P. Beattie	Upland.....	Dr. W. C. Redman
Santa Monica.....	Dr. W. H. Parker	Vacaville.....	Dr. W. C. Jenney
Santa Paula.....	Dr. R. E. Murrill	Vallejo.....	Dr. E. A. Peterson
Santa Rosa.....	Dr. Jackson Temple	Venice.....	Dr. W. M. Kendall
Santa Maria.....	Dr. O. P. Paulding	Ventura.....	J. H. Hardey
Sausalito.....	Dr. A. H. Mays	Vimaria.....	Dr. A. W. Preston
Sawtelle.....	Dr. A. B. Hromadka	Wasco.....	John P. Nolan
Selma.....	Dr. F. H. Williams	Watsonville.....	Dr. F. H. Koepke
Sierra Madre.....	Dr. R. H. Mackerras	Watts.....	Dr. E. J. Richie
Sebastopol.....	Dr. J. J. Keating	Wheatland.....	Dr. A. W. Foshay
Slason.....		Whittier.....	Dr. W. H. Stokes
South Pasadena.....	Dr. C. A. Whiting	Willits.....	Dr. W. L. Blodgett
South San Francisco.....	W. P. Acheson	Willows.....	Thos. Kinkade
Stockton.....	Dr. Hudson Smythe	Winters.....	Dr. J. H. Halle
Sussexville.....	Dr. E. S. Drucks	Woodland.....	Peter Scott
Suisun.....	Dr. S. G. Bransford	Yreka.....	W. D. Doggett
Sunnyvale.....	Dr. E. H. Coleman	Yuba City.....	
Stanton.....			

STANDING NOTICES.

The law makes it the duty of every physician and every citizen who knows of the existence of any case of a communicable disease, to report the same to his local health officer.

The law also requires every physician to report any case of a disease due to occupation. A fee of fifty cents is paid for each report.

Reports of births, deaths, and marriages are required of certain persons. Your local health officer, or registrar of vital statistics will explain all the details of the law.

The State Board of Health maintains depositaries for mailing tubes for sending cultures and specimens to its laboratories at Berkeley for examination. Every physician is invited to avail himself of the nearest depository. A circular of details will be sent upon application.

The California State Board of Health Bulletin is on file in every public library, newspaper office, high school library, and in the offices of county and city health officials. Citizens desiring copies of this issue free of charge should apply to the Secretary, Sacramento.



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